ENVIRONMENTAL ASSESSMENT

MILITARY HOUSING PRIVATIZATION INITIATIVE
Beale Air Force Base, California

June 2005

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ENVIRONMENTAL ASSESSMENT

MILITARY HOUSING PRIVATIZATION INITIATIVE
BEALE AIR FORCE BASE, CALIFORNIA

AIR FORCE CENTER FOR ENVIRONMENTAL EXCELLENCE
BROOKS CITY-BASE, TEXAS

9TH CIVIL ENGINEER SQUADRON
BEALE AIR FORCE BASE, CALIFORNIA

June 2005

FINDING OF NO SIGNIFICANT IMPACT

1.0 NAME OF THE PROPOSED ACTION

Military Family Housing Privatization at Beale Air Force Base (AFB), California. The purpose of the action is to provide privatized housing for military personnel stationed at Beale AFB. This would be accomplished through privatization which would accelerate the Base's ability to provide military families access to safe, quality, affordable housing.

2.0 DESCRIPTION OF THE PROPOSED ACTION AND ALTERNATIVES

Proposed Action. The Air Force proposes to privatize military family housing (MFH) on Beale AFB. The Proposed Action would result in the conveyance of 1,553 existing housing units and leasing up to 1,140 acres of land on the Base. The Proposed Action would result in renovation of 1,344 units (no new construction) and demolition of 209 units.

The Air Force is also considering three alternatives:

- **No Action Alternative.** The Air Force would not privatize any housing on the Base. Existing units would continue to be managed by the Air Force.
- **Alternative 1 (Construction).** Demolition of 1,374 units and replacement of 1,165 units including construction of 200 new units on undeveloped land (Parcel B) south of the existing housing area; and,
- **Alternative 2 (Major Renovation and Construction).** The combination of renovating 60 percent and replacing 40 percent of existing housing units, including construction of 200 new units on Parcel B.

3.0 SUMMARY OF ENVIRONMENTAL EFFECTS

Noise. Noise impacts from replacement and construction of housing at Beale AFB would be limited to short-term, localized increases in noise levels directly associated with the use of demolition and construction equipment. After units are constructed, the noise environment would be similar to baseline conditions. These effects would not be considered significant impacts to the noise environment.

Land Use. The Proposed Action would result in continuation of housing entirely within the developed Family Housing Area of the Base. The Proposed Action would not result in any effect on existing sensitive land use nor would it interfere with the activities or functions of adjacent existing or proposed land uses. Impacts to land use would not be considered significant. The alternative actions would result in conversion of unimproved open space in Parcel B into developed area for housing. This area is located primarily within the development envelope of the housing area and, therefore, conversion of this land to housing would not be considered a significant impact to land use.

Air Quality. Fugitive dust from ground disturbing activities and combustive emissions from construction equipment would be generated during demolition and construction. Air pollutant emissions would be short-term and localized, and would not result in any adverse effects on ambient air quality. Project emissions during construction would be less than USEPA threshold limits and, therefore, would not be considered significant. The Proposed Action is located in an attainment area for ambient air quality standards, and therefore, the U.S. Environmental Protection Agency (EPA) General Conformity Rule (Title 40 Code of Federal Regulations Part 51, Subpart W and Part 93) implementing the conformity provisions of the Clean Air Act does not apply.

Water Resources. The construction of housing at Beale AFB would be conducted to minimize the potential for runoff and erosion that could contaminate surface water. Impacts to surface or ground water quality or quantity would not be considered significant. Construction of housing on Parcel B would result in an increase in impervious areas that could reduce percolation. With adherence to best management practices, impacts to water resources would not be considered significant.

Hazardous Materials and Wastes. Demolition of the existing housing would result in the generation of hazardous waste, particularly building materials with asbestos and lead based paint. These demolition wastes will be managed in accordance with the Beale AFB Asbestos Management and Operating Plan and the Beale AFB Lead Based Paint Management Plan. The volume of chemicals procured for housing construction would not be expected to impact the ability of the Base to meet its reduction goals. The generation of hazardous waste would increase slightly during the demolition and construction. However, these increases would be temporary and would not impact the Base's attainment of the hazardous waste reduction goals. The demolition contractor would be responsible for all asbestos removal before actual demolition of the building. All friable asbestos will be removed by a licensed asbestos abatement contractor using approved abatement methods. The Air Force would ensure that the presence of any lead based paint is identified before initiating demolition. Removal of lead based paint shall comply with 29 CFR 1910. The Proposed Action would not be expected to result in interference with ongoing remediation or investigation activities at Beale AFB. Herbicide and pesticide contamination of the housing sites are not suspected as these sites were not used for agricultural purposes. Radon levels above action levels would not be expected in the housing areas. In the unlikely event that unexploded ordnance (UXO) is uncovered during construction, the Project Owner will be required to stop work and immediately notify the Air Force. All PCB removal would be conducted in accordance with approved methods. Impacts from hazardous materials and wastes from the Proposed Action would not be considered significant.

Biological Resources. The Proposed and Alternative Actions would not result in significant impacts to threatened or endangered species because no suitable habitat for listed species is found in the project area. No listed species are present in the area, with the exception of the State-listed endangered American peregrine falcon, which occasionally forages over grasslands to the east and south of the housing area, but does not nest in this area. Potential impacts to peregrine falcon would not be considered significant. The Proposed Action would not affect any species of special interest. The Proposed Action would not be expected to substantially diminish a regionally or locally important plant or animal species. The Proposed Action would not be expected to result in a substantial infusion of exotic plant or animal species. The Proposed Action would not include any construction activities in wetlands or floodplains. The Alternative Actions would result in loss of up to 186 acres of grassland habitat. With implementation of best management practices, impacts to biological resources would not be considered significant.

Cultural Resources. The Proposed Action would not be located in or near any National Register of Historic Places (NRHP)-eligible sites on Beale AFB. The Proposed Action would involve ground-disturbance during demolition and construction, and may result in the inadvertent discovery of subsurface cultural materials. Damage to, or loss of any cultural artifacts would be considered a significant impact. To avoid this impact, the Air Force will ensure that a best management practice for inadvertent discovery of cultural material is accomplished. The Proposed Action would not be located in any area that is considered a traditional cultural resource area. Construction of housing on Parcel B (Alternative Actions) would not result in impacts to archaeological sites. With implementation of best management practices, impacts to cultural resources would not be considered significant.

Geological Resources. Construction at Beale AFB would occur within an area where the physiographic features and geologic resources have been previously disturbed and modified by prior construction of military family housing or grazing activities. Alteration of ground surface would be minimal compared to existing conditions. Therefore, impacts to physiographical and geological resources would be minimal. Earthwork within the housing area and at the undeveloped sites would be planned and conducted in such a manner as to minimize the duration of exposure of unprotected soils. With incorporation of best management practices, impacts to soils would not be considered significant.

Infrastructure and Utilities. The Proposed Action would result in no net increase in water consumption or wastewater generation. Wastewater would continue to be treated at the Base wastewater treatment plant that is adequate to meet future needs. Impacts to water supply and wastewater treatment systems would not be considered significant. The Proposed Action would result in improvements to the existing storm water system within the existing housing areas. New housing in Parcel B (Alternative Actions) would result in construction of new storm water systems. Impacts to storm water management would not be expected as a result of the Proposed Action or any alternatives. An increase in the consumption of natural gas would occur as a result of conversion from electricity. The Proposed Action would result in a decrease in electricity consumption. Impacts to natural gas and electricity would not be considered significant. The solid waste generated from the construction and demolition activities would be disposed in the landfill operated by Yuba-Sutter Disposal, Inc. This local landfill has sufficient capacity to accommodate future disposal needs. Impacts to solid waste would not be considered significant.

Transportation. Construction-related traffic associated with demolition and renovation would be temporary, routed to minimize disruption to residents, and localized in the specific work area. Impacts from construction-related increases in traffic would not be considered significant. Increases in traffic resulting from relocation of residents to housing off the Base would be expected to be accommodated by the existing transportation network. No net change in the number of military families residing on the Base would result upon completion of the privatized housing renovations and replacements. New housing in Parcel B (Alternative Actions) would require construction of access roadways that would be designed to provide adequate access and capacity. Impacts to transportation would not be considered significant.

Public Services. It is expected that police protection services would continue to be provided by the 9th Security Forces. The Proposed Action would not result in any significant impact on the ability of local police departments to provide protection services within their service areas. It is expected that fire protection services would continue to be provided by the Beale AFB Fire Department. The Proposed Action would not result in any significant impact on the ability of the local fire department to provide fire protection services within their service areas. The Proposed Action would not be expected to result in any significant impact on the ability of the local medical facilities to provide medical services in the area.

Socioeconomics. The Proposed Action would not result in any direct population growth on the Base or in the local community. When units are available to the general public, the Proposed Action could result in an increase in the available housing supply. An increase in the available housing supply in the local area would be considered a beneficial effect. Construction-related employment is generally a temporary condition. No net change in permanent employment for operation and management of privatized housing would be expected. The additional revenue from employment, services and purchases would be considered a beneficial effect on the local economy.

Environmental Justice. Based on the analyses conducted for the EA, it was determined that activities associated with the Proposed and Alternative Actions would not have adverse effects at any location for the following resources: noise; land use; air quality; biological resources; cultural resources; and, transportation. Since the Proposed and Alternative Actions would not have any adverse effect, no disproportionately high and adverse impacts upon minority and low-income populations would be anticipated. Therefore, impacts on environmental justice would not be anticipated.

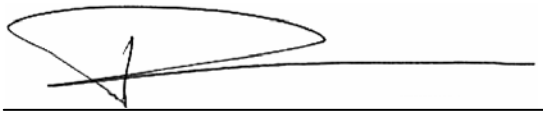
Mitigation. No mitigation measures are required for the Proposed or Alternative Actions.

Cumulative Impacts. The environmental assessment (EA) reviewed cumulative impacts that could result from the incremental impact of the action when added to other past, present, or reasonably foreseeable future actions. With incorporation of best management practices, no cumulative impacts would be anticipated as a result of the Proposed or Alternative Actions.

4.0 CONCLUSION

Based on the findings of the EA conducted in accordance with the National Environmental Policy Act, the Council on Environmental Quality regulations, and implementing regulations set forth in 32 CFR 989 (Environmental Impact Analysis Process), it is concluded that, with incorporation of best management practices for resources as described herein, the environmental effects of the proposed privatization of

military family housing at Beale AFB, California (Proposed Action, Alternative 1 or Alternative 2), would not have a significant impact on the human or natural environment. Preparation of an environmental impact statement (EIS) is not warranted. This decision has been made after taking into account all submitted information and considering a full range of practical alternatives that would meet project requirements and are within the legal authority of the USAF. The attached EA and draft Finding of No Significant Impact (FONSI) were made available to the public on 12 July 2005 for a 15-day review period. All public and agency comments received were addressed in the EA.



11 JAN 06

DOMENICK EANNIELLO, Colonel, USAF — Date
Vice Commander

COVER SHEET

ENVIRONMENTAL ASSESSMENT
MILITARY HOUSING PRIVATIZATION INITIATIVE
BEALE AIR FORCE BASE, CALIFORNIA

JUNE 2005

- **Responsible Agency:** Department of the Air Force, 9th Civil Engineer Squadron, Beale Air Force Base (AFB), California
- **Proposed Action:** Military Housing Privatization Initiative at Beale AFB
- **Report Designation:** Environmental Assessment (EA)
- **Abstract:** The purpose of the Proposed Action is to provide privatized housing for military personnel stationed at Beale AFB. This would be accomplished by conveying 1,553 military family housing units and leasing up to approximately 954 acres of land. Due to advancing age and deterioration, these units require extensive maintenance and repair, and no longer meet current Air Force family housing standards. This EA evaluates the Proposed Action, the No Action Alternative, Alternative Actions, and the cumulative impacts of this and other actions announced for the Base and surrounding area. Under the No Action Alternative, military personnel and dependents would continue to reside in the existing housing units on Beale AFB. Resources considered in the impact analysis were: noise; land use; air quality; water resources, hazardous materials and wastes; biological resources; cultural resources; geological resources; infrastructure and utilities; transportation; public services; and, socioeconomics. With implementation of best management practices, significant impacts would not be expected to result from the Proposed Action, Alternative Actions, or the No Action Alternative. Cumulative impacts would not be expected.
- **Comments:** Written comments and inquiries regarding this document should be directed to: Ms. Diane Arreola, 9 CES/CEV, 6601 B Street, Beale AFB, CA 95903-1708.
- **Privacy Advisory:** Your comments on this Draft EA are requested. Letters or other written comments provided may be published in the Final EA. As required by law, comments will be addressed in the Final EA and made available to the public. Any personal information provided will be used only to identify your desire to make a statement during the public review period for this document, or to fulfill requests for copies of the Final EA or associated documents. Private addresses will be compiled to develop a mailing list for those requesting copies of the Final EA. However, only the names of the individuals making comments and specific comments will be disclosed. Personal home addresses and phone numbers will not be published in the Final EA.

EXECUTIVE SUMMARY

The Air Force proposes to privatize military housing on Beale Air Force Base (AFB), California. The Proposed Action would result in the lease of approximately 954 acres of land on the Base and conveyance of: 1,553 military family housing (MFH) units; the Vassar Lake Substation and all connections to this substation; the entire water system within Beale AFB housing (from the downstream side of two above-ground storage tanks, on the southeast side of Parcel A. Note: the tanks will not be conveyed); the entire sewer system within the housing area; the entire storm drainage system within the housing area; all pavements, including streets, driveways and sidewalks within the housing area, except for Gavin Mandery Drive, Camp Beale Highway and Warren Shingle Road; housing playgrounds and tot lots; Candy Cane Park; five bus shelters; the housing maintenance facility (to be demolished); and, six unaccompanied officers quarters (UOQ).

ES.1 PURPOSE OF AND NEED FOR ACTION

The purpose of the action is to provide privatized housing for military personnel stationed at Beale AFB. This would be accomplished through privatization which would accelerate the Base's ability to provide military families access to safe, quality, affordable housing in a community in which they choose to live. The action will provide suitable family housing for military personnel stationed at Beale AFB. The Air Force is committed to adequately housing its people and responsibly managing its housing resources because productivity and retention of military members greatly depend on such actions. Properly designed and furnished quarters providing some degree of individual privacy are essential to the successful accomplishment of the important and increasingly complicated jobs military personnel must perform.

Due to advancing age and continual deterioration, many existing housing units at Beale AFB require extensive maintenance and repair, and no longer meet Air Force family housing standards. The units must be upgraded to meet current life safety codes and to provide a suitable living environment comparable to the off-base community, in accordance with Air Force guidelines for quality of life and floor space requirements.

ES.2 ALTERNATIVES INCLUDING THE PROPOSED ACTION

ES.2.1 Alternative Selection Process

In 1996, Congress provided the Department of the Air Force and the other military services with authorization containing the Military Housing Privatization Initiative (MHPI) that permits privatization of military family housing. The MHPI assumes that the authorizations will be extended by Congress to allow completion of all privatization projects identified in the Air Force Family Housing Master Plan (AF FHMP). The AF FHMP consolidates data obtained from available planning tools. These tools include an updated Housing Requirements and Market Analysis (HRMA), Housing Community Plan (HCP), Real Property Maintenance Model, and an MFH Privatization Predictive Model. Using these tools, the AF FHMP summarizes the family housing requirement, inventory, and revitalization requirements for the Base.

Air Force guidance states that, to be eligible for privatization, the housing area must be economically feasible with regard to government funding and life cycle costs (maintenance, repair, utilities, management and other services). Beale AFB has 1,553 housing units located in seven housing areas that meets the Air Force criteria for privatization. Therefore, privatizing housing is viable for Beale AFB.

A Housing Requirements and Market Analysis (HRMA) completed in 2002 identifies a current (2002) and projected (2007) shortfall of private sector housing for families of accompanied personnel assigned to Beale AFB (USAF, 2002c).

ES.2.2 Alternatives Eliminated from Further Consideration

Alternative authorities for providing of housing have been available through the Build-to-Lease Program (10 United States Code [U.S.C.] 2835), rental guarantees in accordance with 10 U.S.C. 2836, and leasing of non-excess property in accordance with 10 U.S.C. 2667. Because of changes in budget scoring rules and the advent of housing privatization initiatives, these programs are no longer considered to be viable options for meeting military housing requirements.

Given the condition of the housing units on Beale AFB and the demonstrated need for on-base housing, the Air Force decided to correct housing deficiencies. Two alternatives were developed and considered by the Air Force: military construction (MILCON) funding of housing construction; and, renovation of existing housing with MILCON funding. Each of these alternatives were determined to not be viable and eliminated from further consideration.

The Air Force is considering, and evaluating in this EA, three variations of providing suitable housing for military personnel stationed at Beale AFB:

- **Proposed Action.** Renovation of 1,344 (1,165 major renovation, 179 minor renovation), demolition of 209 units, with no construction of new housing;
- **Alternative 1 (Construction).** Demolition of 1,374 units and replacement of 1,165 units including construction of 200 new units on undeveloped land (Parcel B) south of the existing housing area.
- **Alternative 2 (Major Renovation and Construction).** The combination of renovating 60 percent and replacing 40 percent of existing housing units, including construction of 200 new units on Parcel B.

ES.2.3 Proposed Action (Renovation)

The Air Force proposes to use private sector financing for the renovation of housing units on Beale AFB. The Proposed Action would result in renovation of 1,344 housing units and demolition of 209 units. None of the existing units would be replaced. A total of 1,553 existing units would be conveyed to a Project Owner who would be responsible for renovation and demolition. A total of 1,344 units would result.

The Air Force, in addition to conveying the units for renovation and demolition, would lease up to 954 acres of land to a private developer. The area to be leased includes undeveloped land surrounding the existing housing areas.

Renovation activities associated with the Proposed Action would occur in two phases from Fiscal Year (FY) 2004 through FY 2010 (approximately 78 months). The leasing of housing units and property management services would be contracted to a private company. Improvements would consist of:

- Burying overhead power lines;
- Adding crosswalks at the intersection of the neighborhood streets and East Garyanna Drive;
- Adding jogging and bicycle trails;
- Connecting the neighborhood sidewalks to a housing-wide trail network;
- Adding picnic area and lighted basketball courts and playground area(s); and,
- Enhancing existing landscaping with shade trees, low-maintenance/drought-tolerant foundation plantings, and evergreen shrubs to increase privacy around units.

ES.2.4 No Action Alternative

Under the No Action Alternative, no new housing units would be constructed at Beale AFB. Military personnel and dependents would continue to reside in the existing housing units on the Base. The No Action Alternative would not fulfill the need for the Air Force to provide suitable housing for its military

members. The No Action Alternative, or maintaining the status quo, is not desirable because many units are deteriorating and do not meet Air Force housing standards or current building codes.

ES.2.5 Alternative Actions

Further study on the condition of individual housing units may reveal that renovation may or may not be feasible for a different number of units than anticipated for the Proposed Action. The condition of individual units would not be known until the selected Project Owner conducts individual housing inspections. For this reason, the Air Force is also considering the following two Alternative Actions:

- **Alternative 1 (Construction).** Demolition of 1,374 existing units, minor renovation of 179 existing units, and replacing 1,165 existing housing units, including construction of 200 housing units on 186 acres of undeveloped land (Parcel B) on the Base south of existing housing; and,
- **Alternative 2 (Major Renovation and Construction).** Renovating 60 percent, and replacing 40 percent, of existing housing on Beale AFB. This would result in the demolition of 754 existing units, renovation of the remaining 933 existing units, and replacement of 611 units, including construction of 200 housing units on Parcel B.

ES.3 SCOPE OF THE STUDY

The following bio-physical resources were identified for study at Beale AFB: noise, land use, air quality, water resources, hazardous materials and wastes, biological resources, cultural resources, geological resources, infrastructure and utilities, transportation, public services and socioeconomics. Initial analyses conducted by the Air Force indicated that the proposed activities would not result in either short- or long-term impacts to air installation compatible use program, safety and occupational health, visual resources or recreation.

The baseline conditions used for the environmental evaluation in the EA are assumed to be Fiscal Year (FY) 2001. Baseline conditions reflect the planned beddown of Global Hawk aircraft and associated operations at Beale AFB, as previously evaluated in the Environmental Assessment for Global Hawk Main Operating Base Beddown (March 2001). A FONSI for this action was signed on 9 March 2001.

ES.4 OTHER ACTIONS ANNOUNCED FOR BEALE AFB AND THE SURROUNDING COMMUNITY

The Air Force has announced other projects for Beale AFB that could occur during the same time period as the Proposed Action. Planned projects that would occur at Beale AFB during the same time as the Proposed Action are primarily associated with the operational wing beddown of the Global Hawk Main Operating Base. The only major planned project in the surrounding community of the Base is the Yuba Highlands housing project that is in the preliminary planning stages. Planned projects on the Base and in the surrounding community are assessed from a cumulative perspective in the EA.

ES.5 SUMMARY OF ENVIRONMENTAL IMPACTS

No significant impacts would be expected from any of the alternatives evaluated in this EA. With the exception of air quality, impacts of the Alternative Actions would be similar to the Proposed Action. Impacts for each resource category are described in Table ES-1.

ES.5.1 Environmental Justice

Based on the analyses conducted for the EA, it was determined that activities associated with the Proposed Action would not have adverse effects at any location for the following resources: noise; land use; air quality; and, cultural resources. Since the Proposed Action would not have any adverse effect, no disproportionately high and adverse impacts upon minority and low-income populations would be anticipated. Therefore, impacts on environmental justice would not be anticipated.

ES.5.2 Cumulative Impacts

The EA reviewed cumulative impacts that could result from the incremental impact of the action when added to other past, present, or reasonably foreseeable future actions. Although no avoidance measures would be required, best management practices (BMP) for specific resources would be implemented to prevent or minimize the potential for environmental impacts. BMPs that have been identified for the Proposed and Alternative Actions are shown in Table ES-2. With incorporation of BMPs, no cumulative impacts would be anticipated as a result of the Proposed or Alternative Actions.

ES.6 UNRESOLVED ISSUES

There are no unresolved issues associated with the Proposed Action, Alternative 1 or Alternative 2.

Table ES-1. Summary of Environmental Impacts for Beale AFB

Resource (Applicable Subchapter)	Proposed Action	Alternative 1 (Construction)	Alternative 2 (Major Renovation and Construction)
Noise (Subchapter 4.2)	Noise impacts from demolition and renovation of housing at Beale AFB would be limited to short-term, localized increases in noise levels directly associated with the use of demolition and construction equipment. After units are constructed, the noise environment would be similar to baseline conditions. These effects would not be considered significant impacts to the noise environment.	Noise impacts from demolition and construction would be limited to short-term, localized increases in noise levels associated with the use of heavy equipment. After units are constructed, the noise environment would be similar to baseline conditions. These effects would not be considered significant impacts to the noise environment.	Noise impacts would be similar to Alternative 1 (Construction).
Land Use (Subchapter 4.3)	The Proposed Action would result in continuation of housing entirely within the developed Family Housing Area of the Base. The Proposed Action would not result in any adverse effects on existing sensitive land use nor would it interfere with the activities or functions of adjacent existing or proposed land uses. Impacts to land use would not be considered significant.	Alternative 1 (Construction) would result in conversion of 186 acres of unimproved open space in Parcel B into developed area for housing. Grazing has not occurred on Parcel B over the past three years. This area is located primarily within the development envelope of the housing area and, therefore, would not be considered a significant impact to land use.	Impacts to land use would be similar to Alternative 1 (Construction).
Air Quality (Subchapter 4.4)	Fugitive dust from ground disturbing activities and combustive emissions from renovation equipment would be generated during demolition and renovation. Air pollutant emissions would be short-term and localized, and would not result in any adverse effects on overall ambient air quality. Demolition would include removal of asbestos and lead based paint, and this activity would be conducted in accordance with applicable environmental requirements for the safe removal and disposal of these materials. Project emissions during construction would be less than USEPA threshold limits and, would not be considered significant.	Fugitive dust from ground disturbing activities and combustive emissions from construction equipment would be generated during demolition and construction. Fugitive dust would be generated from activities associated with site clearing, grading, and vehicular traffic moving over the disturbed site. Air pollutant emissions would be greater than the Proposed Action. These emissions would be short-term and localized, and would not result in any adverse effects on overall ambient air quality. Demolition would include removal of asbestos and lead based paint, and this activity would be conducted in accordance with applicable environmental requirements for the safe removal and disposal of these materials. Project emissions during construction would not be considered significant.	Impacts would be similar to Alternative 1 (Construction). Air pollutant emissions would be slightly less than emissions from Alternative 1 (Construction).

Table ES-1. Summary of Environmental Impacts for Beale AFB (Cont'd)

Resource (Applicable Subchapter)	Proposed Action	Alternative 1 (Construction)	Alternative 2 (Major Renovation and Construction)
Water Resources (Subchapter 4.5)	The renovation of housing at Beale AFB would be conducted to minimize the potential for runoff and erosion that could contaminate surface water. No substantial change to the amount of impervious areas would be expected as a result of the Proposed Action. Impacts to surface or ground water quality or quantity would not be considered significant.	Alternative 1 (Construction) would result in an increase in the amount of impervious area on Parcel B that could reduce percolation. With adherence to best management practices (BMP), impacts to water resources would not be considered significant.	Alternative 2 (Major Renovation and Construction) would result in an increase in the amount of impervious area that could reduce percolation. With adherence to BMPs, impacts to water resources would not be considered significant.
Hazardous Materials and Wastes (Subchapter 4.6)	With compliance with hazardous materials management procedures, significant impacts from hazardous materials would not be anticipated. Demolition of the existing housing would result in the generation of hazardous waste, particularly building materials with asbestos and LBP. Demolition wastes will be managed in accordance with the Beale AFB Asbestos Management and Operating Plan and the Beale AFB Lead Based Paint Management Plan. Impacts would not be considered significant. The volume of chemicals procured for housing construction would not be expected to impact the ability of the Base to meet its reduction goals. The generation of hazardous waste would increase slightly during the demolition and construction. Increases would be temporary and would not impact the Base's attainment of the hazardous waste reduction goals. The demolition contractor will be responsible for asbestos removal before demolition. All friable asbestos will be removed by a licensed asbestos abatement contractor using approved abatement methods. The Air Force would ensure that the presence of any lead based paint is identified before initiating demolition. Removal of lead based paint shall comply with 29 CFR 1910. The Proposed Action would not be expected to result in interference with ongoing remediation or investigation activities at Beale AFB.	Impacts from hazardous wastes and hazardous materials would be similar to the Proposed Action and would not be considered significant.	Impacts from hazardous wastes and hazardous materials would be similar to the Proposed Action and would not be considered significant.

Table ES-1. Summary of Environmental Impacts for Beale AFB (Cont'd)

Resource (Applicable Subchapter)	Proposed Action	Alternative 1 (Construction)	Alternative 2 (Major Renovation and Construction)
Hazardous Materials and Wastes (Subchapter 4.6) – Cont'd	Herbicide and pesticide contamination of the housing sites are not suspected as these sites were not used for agricultural purposes. Radon levels above the RAL would not be expected in the housing areas. The Proposed Action would not be expected to result in any impacts from radon. The possibility of uncovering unexploded ordnance (UXO) from past military training activities is considered remote. The Proposed Action would not be expected to result in any impacts from UXO. All PCB removal would be conducted in accordance with approved methods. The Proposed Action would not be expected to result in any impacts from PCB.		
Biological Resources (Subchapter 4.7)	The housing area is located in developed areas that do not provide habitat for listed species. The Proposed Action would not result in significant impacts to threatened or endangered species because no suitable habitat for listed species is found in the project area. No listed species are present in the area of the Proposed Action, with the exception of the Federally-listed species of concern and State-listed endangered peregrine falcon, which occasionally forages over grasslands to the east and south of the housing area, but does not nest in this area. Potential impacts to peregrine falcon would not be considered significant. The Proposed Action would not affect any species of special interest. The Proposed Action would not be expected to substantially diminish a regionally or locally important plant or animal species. The Proposed Action would not be expected to result in a substantial infusion of exotic plant or animal species. The Proposed Action would not include any construction activities in wetlands or floodplains.	Alternative 1 (Construction) would result in loss of up to 186 acres of grassland habitat. Monitoring of western burrowing owl by 9 CES/CEV would be conducted in advance of site clearing for housing construction on Parcel B. Impacts to biological resources would not be considered significant.	Alternative 2 (Major Renovation and Construction) would result in loss of up to 186 acres of grassland habitat. Monitoring of western burrowing owl by 9 CES/CEV would be conducted in advance of site clearing for housing construction on Parcel B. Impacts to biological resources would not be considered significant.

Table ES-1. Summary of Environmental Impacts for Beale AFB (Cont'd)

Resource (Applicable Subchapter)	Proposed Action	Alternative 1 (Construction)	Alternative 2 (Major Renovation and Construction)
Cultural Resources (Subchapter 4.8)	The Proposed Action would not be located in or near any NRHP-eligible sites on Beale AFB. None of the existing housing units to be demolished are eligible for listing on the NRHP. The Proposed Action would involve ground-disturbance during demolition and construction for utility improvements. Groundwork may result in the inadvertent discovery of subsurface cultural materials. Damage to, or loss of any cultural artifacts would be considered a significant impact. To avoid this impact, the Air Force will ensure that the BMP for inadvertent discovery of cultural material is accomplished. The Proposed Action would not be located in any area that is considered a traditional cultural resource area. Impacts to traditional cultural resources would not be expected as a result of the Proposed Action.	Alternative 1 (Construction) would result in construction of 200 housing units on 186 acres of unimproved land in Parcel B. Two known archaeological sites in this area, CA-YUB-1161 and CA-YUB-1170H, are not considered eligible for the NRHP. With implementation of BMPs, impacts to cultural resources would not be considered significant.	Alternative 2 (Major Renovation and Construction) would not be expected to result in disturbance to archaeological sites. With implementation of BMPs, impacts to cultural resources would not be considered significant.
Geological Resources (Subchapter 4.9)	Construction at Beale AFB would occur within an area where the physiographic features and geologic resources have been previously disturbed and modified by prior construction of military family housing. Alteration of ground surface would be minimal compared to existing conditions. Therefore, impacts to physiographic and geological resources would be minimal. Earthwork would be planned and conducted in such a manner as to minimize the duration of exposure of unprotected soils. With incorporation of BMPs, impacts to soils would not be considered significant.	Construction of housing in Parcel B would result in alteration of the ground surface in an area where the physiographic features and geologic resources have been previously disturbed and modified by grazing activities. Impacts to physiography and geology would be minimal. Earthwork would be planned and conducted in such a manner as to minimize the duration of exposure of unprotected soils. With incorporation of BMPs, impacts to soils would not be considered significant.	Impacts to geological resources would be similar to Alternative 1 (Construction).

Table ES-1. Summary of Environmental Impacts for Beale AFB (Cont'd)

Resource (Applicable Subchapter)	Proposed Action	Alternative 1 (Construction)	Alternative 2 (Major Renovation and Construction)
Infrastructure and Utilities (Subchapter 4.10)	The Proposed Action would result in no net increase in water consumption or wastewater generation. Wastewater would continue to be treated at the Base WWTP that is adequate to meet future needs. Impacts to water supply and wastewater treatment systems would not be considered significant. The Proposed Action would result in improvements to the existing storm water system within the existing housing areas. An increase in the consumption of natural gas would occur as a result of conversion from electricity. The Proposed Action would result in a decrease in electricity consumption. Impacts to natural gas and electricity would not be considered significant. The solid waste generated from the construction and demolition activities would be disposed in the landfill operated by Yuba-Sutter Disposal, Inc. This local landfill has sufficient capacity to accommodate future disposal needs. Impacts to solid waste would not be considered significant.	Impacts to infrastructure and utilities would be similar to the Proposed Action. Alternative 1 (Construction) would result in construction of new storm water systems on Parcel B. Impacts to storm water management would not be considered significant.	Impacts to infrastructure and utilities would be similar to the Proposed Action. Alternative 2 (Major Renovation and Construction) would result in construction of new storm water systems on Parcel B. Impacts to storm water management would not be considered significant.
Transportation (Subchapter 4.11)	Construction-related traffic associated with demolition and renovation for the Proposed Action would be temporary, routed to minimize disruption to residents, and localized in the specific work area. Impacts from construction-related increases in traffic would not be considered significant. Increases in traffic resulting from relocation of residents to housing off the Base would be expected to be accommodated by the existing transportation network. No net change in the number of military families residing on the Base would result upon completion of the privatized housing renovations and replacements. Impacts to transportation from the Proposed Action would not be considered significant.	Impacts to transportation systems would be similar to the Proposed Action. Alternative 1 (Construction) would require construction of new roadways that would be designed to provide adequate access and capacity. Impacts to transportation from these alternatives would not be considered significant.	Impacts to transportation systems would be similar to Alternative 1 (Construction).

Table ES-1. Summary of Environmental Impacts for Beale AFB (Cont'd)

Resource (Applicable Subchapter)	Proposed Action	Alternative 1 (Construction)	Alternative 2 (Major Renovation and Construction)
Public Services (Subchapter 4.12)	It is expected that police protection services would continue to be provided by the 9th Security Forces. The Proposed Action would not result in any significant impact on the ability of local police departments to provide protection services within their service areas. It is expected that fire protection services would continue to be provided by the Beale AFB Fire Department. The Proposed Action would not result in any significant impact on the ability of the local fire department to provide fire protection within their service areas. The Proposed Action would not be expected to result in any significant impact on the ability of the local facilities to provide medical services in the area.	Impacts to public services would be similar to the Proposed Action.	Impacts to public services would be similar to the Proposed Action.
Socioeconomic Resources (Subchapter 4.13)	The Proposed Action would not result in any direct population growth on the Base or in the local community. When units are available to the general public, the Proposed Action could result in an increase in the available housing supply. An increase in the available housing supply in the local area would be considered a beneficial effect. Construction-related employment is generally a temporary condition. No net change in permanent employment for operation and management of privatized housing would be expected. The additional revenue from employment, services and purchases would be considered a beneficial effect on the local economy.	Impacts to socioeconomics would be similar to the Proposed Action.	Impacts to socioeconomics would be similar to the Proposed Action.

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Table ES-2. Summary of Best Management Practices

Resource	Best Management Practices
Noise	▪ Development of a housing vacancy plan that would keep occupied units as far away as possible from planned construction activity.
Land Use	▪ None.
Air Quality	▪ Watering the disturbed areas of the construction site would reduce total suspended particulate emissions as much as 50 percent.
Water Resources	▪ Design and construction of the replacement housing units to incorporate adequate storm drainage. ▪ Compliance with standard erosion control practices for ground disturbing activities. ▪ Compliance with provisions of the Storm Water Pollution Prevention Plan (SWPPP) and specific BMPs to prevent or minimize the potential for impacts to water resources from sedimentation and erosion. ▪ Compliance with SWPPP procedures for spill prevention and response, routine inspection of discharges at sites, and proper training of employees.
Hazardous Materials and Wastes	▪ In the event of a spill of any amount or type of hazardous material or waste (petroleum products included), the Project Owner will take immediate action to contain and clean up the spill. ▪ The Project Owner's spill clean up personnel will be trained and certified to perform spill clean up. ▪ The Project Owner will be responsible for the proper characterization and disposal of any waste and clean up materials generated. ▪ All waste and associated clean up material will be removed from the Base and transported and/or stored in accordance with regulations until final disposal. ▪ All details concerning the spill will be provided to the Air Force in the form of a written incident report. ▪ The Project Owner is responsible for restoring a spill site to the condition prior to the spill or to an improved condition. ▪ Fueling and lubrication of equipment will be conducted in a manner that affords maximum protection against spills. ▪ Secondary containment is required around temporary fuel oil or petroleum storage tanks larger than 660 gallons and is recommended for smaller tanks. ▪ The Project Owner would ensure that prior coordination with 9 CES/CEVR is conducted before initiating construction activities. As part of this coordination, the Project Owner would be informed of all ERP sites on or near the housing area. ▪ The Project Owner will be required to stop work and notify the Air Force of any unexploded ordnance (UXO) uncovered during site work.
Biological Resources	▪ The two isolated stands of oak trees in Parcel A east of the Mountain View housing will be retained in place. Any construction of structures or improvements in the undeveloped portion of Parcel A will be designed to avoid the two stands of oak trees. ▪ Construction work or other improvements at Dry Creek in the area of the existing sewer line will not commence without the presence of a biological monitor who will ensure that northwestern pond turtle is not nesting or present in the area. ▪ Landscaping for the housing areas will specify drought-tolerant, native shrubs and plants. ▪

Table ES-2. Summary of Best Management Practices (Cont'd)

Resource	Best Management Practices
Biological Resources (Cont'd)	▪ The Base Natural Resources Manager will establish construction work limits along the corridor of the Dry Creek Riparian Preservation Area west of Beale West and Gold Country housing areas to avoid disturbance to riparian habitat. All equipment storage areas and construction laydown areas will be sited within disturbed areas. Construction work in the creek will be prohibited. ▪ **Alternatives 1 and 2 only.** The Base Natural Resources Manager (9 CES/CEVA) will ensure that monitoring of Western burrowing owl is accomplished in advance of site clearance for any housing construction in Parcel B.
Cultural Resources	▪ The Air Force shall ensure that ground-disturbing work, including utility improvements, is conducted to avoid displacement of archaeological sites within the conveyance boundaries. ▪ The 9 CES/CEV Cultural Resources Manager will be responsible for establishing a 150 ft buffer zone around archaeological sites within the conveyance boundaries. The area of sensitivity shall be staked and flagged by the Air Force, who shall also be responsible for the installation of a temporary fence or other construction barrier around the buffer area. ▪ All equipment storage areas and construction laydown areas will be sited to avoid archaeological sites. ▪ In the event that previously undetected archaeological resources are discovered during earthwork, the construction contractor will be required to stop construction activities in the affected area (and a reasonable buffer exclusionary area) and contact the Base Cultural/Natural Resources Manager. Any unknown site or other cultural remains inadvertently discovered must be assumed to be potentially eligible for NRHP listing. The Base Cultural/Natural Resources Manager will then notify the Installation Commander about the nature, location and circumstances of the discovery. Where no human remains are involved, the Cultural/Natural Resources Manager shall consult with SHPO to obtain written approval for an emergency discovery treatment plan as required. In the event further investigation is required, any data recovery would be performed in accordance with the Secretary of the Interior's Standards and Guidelines for Archaeological Documentation (48 FR 44734-37) and take into account the Council's publication, Treatment of Archaeological Properties. ▪ The Air Force would ensure that Native American consultation and coordination is carried out in accordance with Section 5.5 of the Cultural Resources Management Plan (CRMP) in the event that ground-disturbance activities uncover traditional cultural resources.
Geological Resources	▪ The Air Force would ensure that specific recommendations included in the geotechnical investigation for the housing area are followed to the maximum extent practicable. ▪ BMPs identified for Water Resources would be carried out to avoid or minimize potential impacts from sedimentation and erosion.
Infrastructure and Utilities	▪ In accordance with Executive Order 13123, the Air Force would ensure that energy efficiency goals area included in the design of the privatized housing units.
Transportation	▪ (None)
Public Services	▪ The Air Force would coordinate any future proposed changes in public services needs with the appropriate local police and fire protection agencies as well as emergency medical service providers.
Socioeconomic Resources	▪ (None)

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ACRONYMS AND ABBREVIATIONS

AAFES	Army & Air Force Exchange Service
ACM	asbestos containing material
AF	Air Force
AFB	Air Force Base
AFCEE	Air Force Center for Environmental Excellence
AFI	Air Force Instruction
AFM	Air Force Manual
AICUZ	air installation compatible use zone
AIHA	American Industrial Hygiene Association
AMOP	Asbestos Management and Operating Plan
ANSI	American National Standards Institute
AOC	area of concern
AQCR	air quality control region
AQMD	Air Quality Management District
ARPA	Archaeological Resources Protection Act of 1979
ASR	Archives Search Report
B.A.	Bachelor of Arts
BAH	Basic Allowance for Housing
BMP	best management practice
B.S.	Bachelor of Science
CA	California
CAA	Clean Air Act
CARB	California Air Resources Board
CECR	Real Property Element
CEQ	Council on Environmental Quality
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CERL	Construction Engineering Research Laboratory
CES	Civil Engineering Squadron
CEV	Environmental Flight
CFR	Code of Federal Regulations
CO	carbon monoxide
CRMP	Cultural Resources Management Plan
CRWQCB	California Regional Water Quality Control Board
dB	decibel
dBA	A-weighted sound level
DERP	Defense Environmental Restoration Program
DNL	day-night average sound level
DoD	Department of Defense
DoDD	Department of Defense Directive

EA	environmental assessment
EIAP	environmental impact analysis process
EIS	environmental impact statement
E.O.	Executive Order
EPA 17	Products containing the 17 chemicals listed under the voluntary 33/50 USEPA Industrial Toxics Program
EPCRA	Environmental Planning and Community Right-to-Know Act
ERP	Environmental Restoration Program
ESA	Endangered Species Act
ESOHCAMP	Environmental Safety and Occupational Health Compliance and Management Program
F	Fahrenheit
FAA	Federal Aviation Administration
FHMP	Federal Housing Master Plan
FICON	Federal Interagency Committee on Urban Noise
FONSI	finding of no significant impact
FR	Federal Rule
FUDS	Formerly Used Defense Sites
FY	fiscal year
HCP	Housing Community Profile or Housing Community Plan
HMA	Housing Marketing Analysis
HQ	headquarters
HRMA	Housing Requirements and Market Analysis
HUD	Housing and Urban Development
HVAC	Heating, Ventilation and Air Conditioning
INRMP	Integrated Natural Resources Management Plan
kVA	kilovolt-ampere
lb	pound
LBP	lead based paint
L_{eq}	equivalent sound level
L_{max}	maximum sound level
LOS	level of service
M.A.	Master of Arts
mcf	million cubic feet
MFH	military family housing
mgd	million gallons per day
$\mu g/m^3$	micrograms per cubic meter
MHPI	Military Housing Privatization Initiative
MILCON	military construction
MRP	Munitions Response Program
M.S.	Master of Science
MSW	municipal solid waste

MW	megawatt(s)
NAAQS	National Ambient Air Quality Standards
NAGPRA	Native American Graves Protection and Repatriation Act of 1990
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NLR	noise level reduction
NPDES	National Pollutant Discharge Elimination System
NO_2	nitrogen dioxide
NO_x	nitrogen oxides
NRHP	National Register of Historic Places
O_3	ozone
ODS	ozone depleting substance
OMB	Office of Management and Budget
OSHA	Occupational Safety and Health Act
P2 MAP	Pollution Prevention Management Action Plan
PAX	Passengers
Pb	lead
PCB	polychlorinated biphenyls
pCi/l	picoCuries per liter
PG&E	Pacific Gas and Electric Company
P.L.	Public Law
PM_{10}	particulate matter equal to or less than 10 microns in aerodynamic diameter
ppm	parts per million
RAL	radon action level
RCRA	Resource Conservation and Recovery Act
SARA	Superfund Amendments and Reauthorization Act
Sec.	Section
SEL	sound exposure level
SFH	singe-family home
SFS	Security Forces
SHPO	State Historic Preservation Officer
SO_2	sulfur dioxide
SO_x	sulfur oxides
sq ft	square feet
Stat.	Statute
SWMU	solid waste management unit
SWPPP	Storm Water Pollution Prevention Plan
SSC	species of special concern
TLF	transient living facility
tons/yr	tons per year
TSCA	Toxic Substances Control Act
TSP	total suspended particulates

UOQ	unaccompanied officers quarters
U.S.	United States
USAF	United States Air Force
U.S.C.	United States Code
USEPA	United States Environmental Protection Agency
USDOT	United States Department of Transportation
USGS	United States Geological Survey
UXO	unexploded ordnance
VOC	volatile organic compounds
WDR	Waste Discharge Requirements
WWTP	wastewater treatment plant

CHAPTER 1

PURPOSE AND NEED

This chapter has six Subchapters: an introduction to the Proposed Action, the purpose of and need for the Proposed Action, the location of the Proposed Action, a summary of the scope of the environmental review, an identification of applicable bio-physical resources, and a listing of applicable regulatory requirements.

1.1 INTRODUCTION

In 1996, Congress provided the Department of the Air Force and the other military services with authorization containing the Military Housing Privatization Initiative (MHPI) that permits privatization of military family housing (MFH). The MHPI assumes that the authorizations will be extended by Congress to allow completion of all privatization projects identified in the Family Housing Master Plan (FHMP). The FHMP consolidates data obtained from available planning tools. These tools include an updated Housing Market Analysis, Housing Community Profile (HCP), Real Property Maintenance Model, and an MFH Privatization Predictive Model. Using these tools, the FHMP summarizes the family housing requirement, inventory, and revitalization requirements for the Base.

Air Force guidance states that, to be eligible for privatization, the housing area must be economically feasible with regard to government funding and life cycle costs (maintenance, repair, utilities, management and other services). Beale Air Force Base (AFB), California, hereinafter referred to as the Base, has 1,553 housing units located in seven housing areas on the Base that meets the Air Force criteria for privatization. Therefore, privatizing housing is viable for Beale AFB.

1.2 PURPOSE OF AND NEED FOR ACTION

The purpose of the action is to provide housing for military personnel stationed at Beale AFB. This would be accomplished by privatizing the housing units in the Lakeview, Beale East, Beale West, Gold Country, Birdland Townhouses (Multiplex), Brookview and Mountain View housing areas. There is a need for housing privatization as a means to accelerate the Base's ability to provide military families access to safe, quality, affordable housing in a community in which they choose to live. The action will provide suitable family housing for military personnel stationed at Beale AFB. The Air Force is committed to adequately housing its people and responsibly managing its housing resources because productivity and retention of Air Force members greatly depend on such actions (per Air Force Policy Directive 32-60, *Housing,* 20 July 1994). Properly designed quarters providing some degree of individual privacy are essential to the successful accomplishment of the important and increasingly complicated jobs military personnel must perform.

Due to advancing age and continual deterioration, the existing housing units at Beale AFB require extensive maintenance and repair, and no longer meet Air Force family housing standards. The units must be upgraded or replaced to provide a suitable living environment comparable to the off-base community, in accordance with Air Force guidelines for quality of life and floor space requirements.

1.3 LOCATION OF THE ACTION

Beale AFB is located in northern California, approximately 40 miles north of Sacramento. The Base is located in a rural area of Yuba County, approximately 13 miles east of the communities of Marysville and Yuba City. The Base occupies 22,944 acres (approximately 36 square miles) of federally owned land. Figure 1 shows the location of Beale AFB and the surrounding area.

1.4 SCOPE OF THE ENVIRONMENTAL REVIEW

Federal agencies are required to consider the environmental consequences of proposed actions in the decision-making process as mandated by the National Environmental Policy Act (NEPA) of 1969. The intent of NEPA is to protect, restore, or enhance the environment through well-informed federal decisions. The Council on Environmental Quality (CEQ) was established under NEPA to implement and oversee federal policy in this process. In 1978, the CEQ issued regulations implementing the process [40 Code of Federal Register (CFR) 1500-1508]. The CEQ regulations require that an environmental assessment (EA):

- Briefly provide evidence and analysis to determine whether the Proposed Action might have significant effects that would require preparation of an environmental impact statement (EIS). If the analysis determines that the environmental effects will not be significant, a finding of no significant impact (FONSI) will be prepared; or
- Facilitate the preparation of an EIS, when required.

This EA assesses the proposed renovation, demolition, and construction of privatized housing units at Beale AFB. This EA complies with the Air Force Environmental Impact Analysis Process (EIAP) as promulgated in 32 CFR 989 [*Environmental Impact Analysis Process,* 6 July 1999 as amended by 66 Federal Register (FR) 16866, 28 March 2001] which implements NEPA, CEQ regulations, and Department of Defense (DoD) Instruction 4715.9 (*Environmental Planning and Analysis*).

This EA identifies, describes, and evaluates the potential environmental impacts that may result from the implementation of the Proposed Action, No Action Alternative and the Alternative Action. The EA also evaluates potential cumulative impacts from other actions planned for the Base and surrounding areas. The EA identifies required environmental permits relevant to the Proposed Action. As appropriate, the affected environment and environmental consequences of the Proposed Action may be described in terms of site-specific descriptions or a regional overview. Finally, the EA identifies avoidance measures to prevent or minimize environmental impacts, if required.

1.5 IDENTIFICATION OF BIO-PHYSICAL RESOURCES APPLICABLE TO THE ENVIRONMENTAL ASSESSMENT

The following bio-physical resources were identified for study at Beale AFB: noise, land use, air quality, water resources, hazardous materials and wastes, biological resources, cultural resources, geological resources, infrastructure and utilities, transportation, public services and socioeconomics.

Initial environmental analyses by the Air Force indicated that the Proposed Action would not result in either short- or long-term impacts to air installation compatible use zone (AICUZ). The reasons for not addressing this and other subjects are discussed in the following paragraphs:

AICUZ. The Proposed Action would not require the use of any aircraft or result in any airfield operations, nor would it result in any change in existing and planned aircraft activities in the vicinity of the housing areas on Beale AFB. For this reason, accident potential, encroachment, airspace and airfield operations are not evaluated in this EA.

Recreation. No loss of existing outdoor recreational areas, natural environmental areas or special interest areas would result from implementation of the Proposed Action. Adverse effects on availability of resources at Beale AFB would not be expected to result from the Proposed Action.

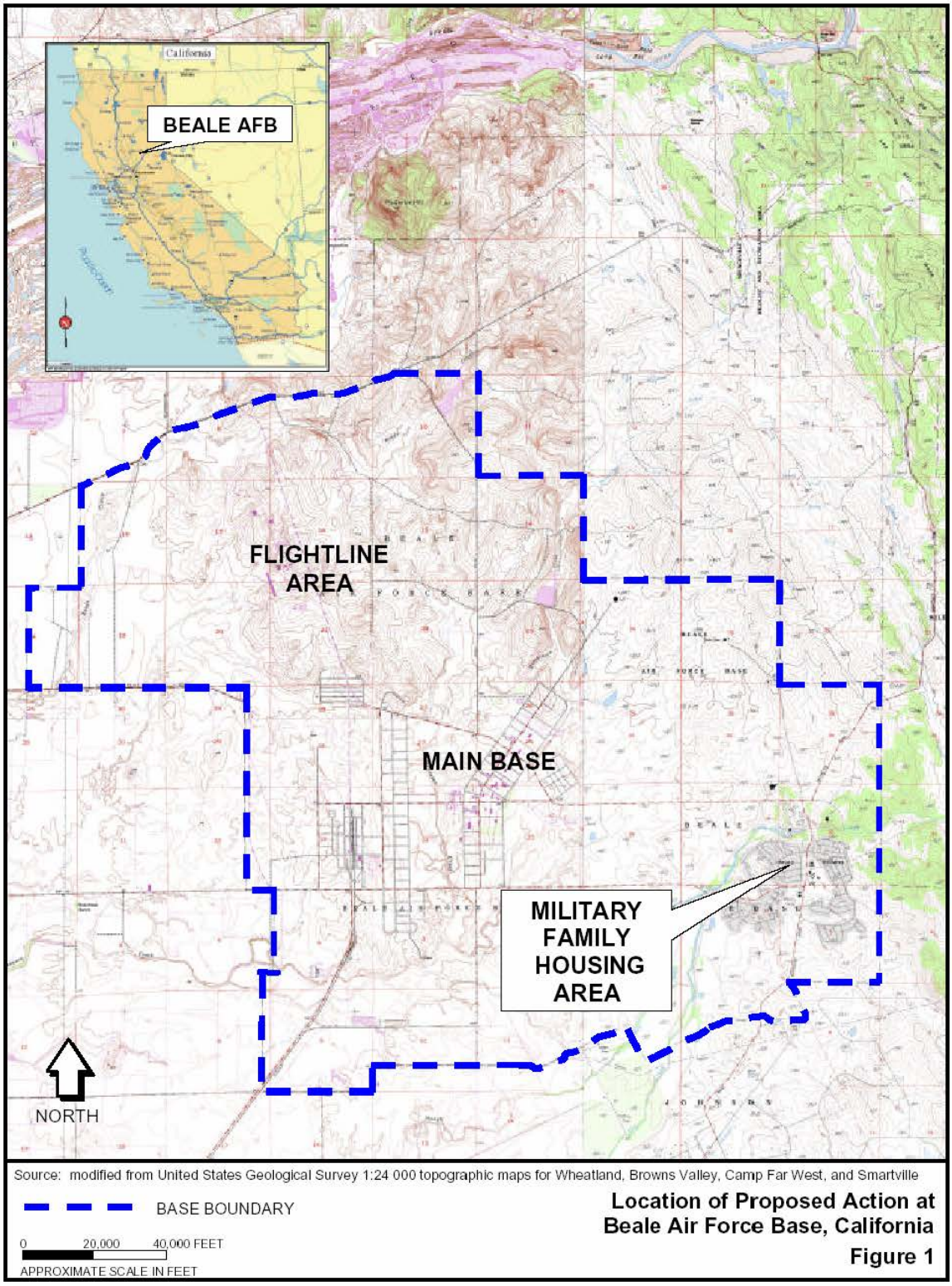

Figure 1. Location of Proposed Action at Beale AFB, California

- **Visual Resources.** The proposed housing would be designed with an architectural style similar to the surrounding housing area on Beale AFB. No substantial change in visual character of the housing area, or loss of scenic views, would be expected to result from the Proposed Action.

- **Environmental Justice.** Since the Proposed Action and alternatives were found to not result in any adverse effects on environmental resources, no disproportionately high and adverse impacts upon minority and low-income populations would be anticipated. Therefore, impacts on environmental justice would not be anticipated.

The baseline conditions used for the environmental evaluation in this EA are Fiscal Year (FY) 2001. Baseline conditions are the same as used in the EA for beddown of Global Hawk aircraft and associated operations at Beale AFB. This action was previously evaluated in the Environmental Assessment for Global Hawk Main Operating Base Beddown (USAF, 2001d). A FONSI for this action was signed on 9 March 2001.

1.6 APPLICABLE REGULATORY REQUIREMENTS

Potential regulatory permits applicable to the Proposed Action are presented in Table 1. The Proposed Action may require additional environmental permits and amendments to existing permits. The Air Force would obtain and maintain permits from regulatory agencies as identified by the housing Project Owner during the project.

Table 1. Potentially Required Federal Permits, Licenses, or Entitlements for Beale AFB

Regulatory Requirement	Activity	Authority	Regulatory Agency
NPDES Permit	Actions to protect water resources from pollutants that may be carried by storm water runoff. Storm water discharge permit will be required for construction activities that cover more than one acre of land. If any water is to be discharged from the site, an NPDES permit must be obtained and a Notice of Intent filed with the State Department of Health.	Clean Water Act, P.L. 92-500, 33 U.S.C. Sec. 1342 et seq., 40 CFR Part 122	California Regional Water Quality Control Board

AFB	Air Force Base	Sec.	Section
CFR	Code of Federal Regulations	U.S.C.	United States Code
NPDES	National Pollutant Discharge Elimination System	USEPA	United States Environmental Protection Agency
P.L.	Public Law		

In addition to permit requirements, the Air Force may also be required to initiate the following consultation or coordination processes regarding the Proposed Action:

- Consultation with the California State Historic Preservation Office (SHPO) regarding the potential effects of the Proposed Action on historic properties in accordance with Section 106 of the National Historic Preservation Act (NHPA) of 1966 (as amended) and 36 CFR 800.

- Coordination with appropriate affiliated tribal groups regarding the lands potentially affected by the Proposed Action. In accordance with the NHPA, the American Indian Religious Freedom Act (AIRFA), the Native American Graves Protection and Repatriation Act (NAGPRA), and the Archaeological Resources Protection Act (ARPA), the Air Force will provide notification to tribal groups to assist in identifying cultural deposits, sacred sites, traditional cultural places, and cemeteries that may be located on Beale AFB.

- Consultation with the U.S. Fish and Wildlife Service regarding potential impacts of the Proposed Action on plant and animal populations in accordance with Section 7 of the Endangered Species Act (ESA).

- The housing Project Owner would ensure that a storm water pollution prevention plan is completed and approved before initiating any construction activities.

CHAPTER 2

DESCRIPTION OF THE PROPOSED ACTION AND ALTERNATIVES

This chapter has eight subchapters: a history of the formulation of the alternatives; alternatives eliminated from further consideration; a detailed description of the Proposed Action; a description of the No Action Alternative; descriptions of two alternative actions; a comparison of the environmental impacts of all alternatives; and, identification of other actions announced for the Base and surrounding community.

2.1 HISTORY OF THE FORMULATION OF ALTERNATIVES

On February 11, 1996, the National Defense Authorization Act for Fiscal Year 1996, containing the MHPI, was signed into law. The MHPI allows for the utilization of funds designated for specific Air Force projects in the construction of private sector financed housing. In addition, the MHPI provides a wide range of alternatives to conventional military housing construction for revitalizing, constructing, and acquiring other additional family housing and barracks. The MHPI (Subtitle A of House Resolution 1530, *National Defense Authorization Act for Fiscal Year 1996*, signed January 6, 1996) describes guarantees and commitments that the DoD is authorized to make to private sector housing providers. The MHPI restricts the government's contribution to an amount not to exceed 33 percent of the total capital cost of the project. The MHPI is the enabling legislation that would authorize the execution of the various alternatives financed by the private sector.

Public Law 104-106 [110 Statute (Stat.) 186 Section 2801] allows the DoD to work with the private sector to build and renovate military housing. The goals of this initiative are to obtain private capital to leverage government dollars, make efficient use of limited resources and use a variety of private sector approaches to build and renovate military housing faster and at a lower cost. This initiative addresses the deteriorating quality of DoD-owned housing as well as the shortage of affordable, quality private housing available to service people and their families. While the DoD policy is to rely on the private sector to provide suitable housing, it is also directed to only provide on-base housing for those families who cannot find suitable housing in the community. Military salaries for many enlisted personnel limit the ability to obtain quality, affordable privately owned housing within a reasonable commuting distance. In addition, many communities near military installations do not have an adequate supply of affordable, quality rental housing.

In 1996, Congress provided the DoD with authorization to privatize family housing. Housing privatization projects have been awarded at approximately 50 DoD installations. Over 200,000 housing units nationwide have been constructed using private sector financing, rather than appropriated funds. Privatization has been implemented at installations that include Lackland, Robins, Dyess and Elmendorf AFBs. The Air Force intends to continue using these authorizations to satisfy new construction, replacement, and improvement requirements where housing privatization is economically feasible. These authorizations have been extended to 2004 by Congress to allow completion of all privatization projects identified in the FHMP in accordance with the DoD goal of upgrading all inadequate military housing by the year 2010.

The FHMP is compiled from each installation's family housing master plan. The FHMP for each installation identifies the existing inventory, the actions (and costs) required to meet modern standards, the remaining economic life of surplus housing, and the timing of the phase-out of surplus housing so that the local housing market is not disrupted. Each installation's plan also identifies the costs for various categories (utilities, maintenance, repair, and other residential services). In addition, the plan provides a preliminary assessment of the feasibility of privatization. The FHMP identifies two criteria to determine the viability of housing privatization:

- **Economic Feasibility and Scored Cost.** The Office of Management and Budget (OMB) scored cost for housing privatization cannot exceed one third of the estimated MILCON cost to bring all housing units up to modern standards (referred to as a three-to-one leverage in budget authority). The scored cost is the amount of funds OMB requires the Air Force to budget in the current fiscal year to cover the federal government's costs (and potential costs) associated with the loans, guarantees, and other financial obligations or future commitments being made.

- **Economic Feasibility and Life Cycle Costs.** Guidance requires that the life cycle costs associated with privatization be less than the life cycle costs for government ownership. The cost of privatization includes the OMB scored cost and the net present value of the expected Basic Allowance for Housing (BAH) for service members living in the privatized units. The life cycle costs of government ownership include the MILCON cost and the net present value of maintenance, repair, utilities, management, and any other services provided.

The DoD evaluates the housing conditions and related local factors at installations and nominates those installations that are suitable based on privatization criteria. If both criteria are met, privatization is generally selected. If either of the two criteria is not met, the use of traditional construction options is generally selected. Military family housing at Beale AFB meets the two privatization criteria. Therefore, privatizing housing is viable for Beale AFB.

In 1999, the Air Force prepared an HCP for Beale AFB. The objectives of the HCP were: to provide a comprehensive view of the housing areas at Beale AFB, and develop a plan for providing homes that would be comparable in design and amenities to current military family housing standards. These standards offer: adequate transportation and utility systems; properly designed, convenient off-street parking; family support facilities; and, recreation facilities and athletic areas. The goals of the HCP were to improve community areas and the individual housing units. The HCP was developed in accordance with family housing planning, programming, design and construction guidelines in accordance with Air Force Instruction (AFI) 32-6002 (27 May 1997).

The housing community on Beale AFB is located in the southeastern portion of the installation, approximately five miles from the two other developed areas on the Base (the main base and the flight line). The housing community is composed of seven neighborhoods: Lakeview, Beale West, Gold Country, Birdland Townhouses (Multi-plex), Beale East, Brookview and Mountain View. The existing housing units at Beale AFB were constructed between 1958 and 2002.

Many of the housing units on Beale AFB show the effects of age, continuous heavy use, and high occupant turnover. Many of the units do not meet the needs of today's families. Bedrooms are small and lack adequate storage space. The units lack an adequate number of bathrooms. Fixtures are outdated and energy inefficient. Kitchens do not provide adequate dining arrangements or sufficient counter space. The ventilation system is inefficient and needs to be upgraded. Building materials in the housing units are expected to contain asbestos and lead based paint.

In 1996, a housing market analysis (HMA) was conducted to evaluate the housing market area surrounding Beale AFB. The HMA assessed the ability of the off-base housing market to provide housing for military personnel at Beale AFB. Off-base housing must meet Air Force standards for location, cost, size and suitability. The study found an overall deficit of 39 housing units for the Base. In 1999, a subsequent HMA identified a total deficit, from all grade categories, of 785 two-bedroom units. This deficit was effectively reduced to 179 units through reallocation of occupants and conversion of other housing categories. The Housing Requirements and Market Analysis (HRMA), completed in 2002, identifies a current (2002) and projected (2007) shortfall of private sector housing for families of accompanied personnel assigned to Beale AFB (USAF, 2002c).

The Air Force determined that the 1,553 housing units in the Beale AFB inventory would be conveyed, but that only 1,344 units would be required in the end state of privatization. Based on these findings, the Air Force has identified a Proposed Action to renovate most of the units that would be conveyed. As part of the Proposed Action, the Air Force would lease land in the housing area to a private entity (Project Owner).

Further study on the condition of individual housing units may reveal that renovation may or may not be feasible for a different number of units than anticipated for the Proposed Action. The condition of individual units would not be known until the individual housing inspections are conducted. For this reason, the Air Force is also considering two Alternative Actions. The Proposed and Alternative Actions are summarized as follows:

- **Proposed Action (Renovation).** Renovation of 1,344 units and lease of up to 1,140 acres of land in the housing area;
- **Alternative 1 (Construction).** Demolition of 1,374 units, minor renovation of 179 units, and replacing 1,165 existing units, including construction of 200 new housing units on 186 acres of undeveloped land (Parcel B) on the Base south of existing housing; lease of up to 1,140 acres of land; and,
- **Alternative 2 (Major Renovation and Construction).** Renovating 60 percent (or 933 units) and replacing 40 percent (or 411 units), including construction of 200 new housing units on Parcel B. This alternative would result in the demolition of 820 units and lease of up to 1,140 acres of land.

2.2 ALTERNATIVES ELIMINATED FROM FURTHER CONSIDERATION

Given the condition of the housing units on Beale AFB and the demonstrated need for on-base housing, the Air Force decided to correct housing deficiencies. Two alternatives were developed and considered by the Air Force: military construction (MILCON) funding for housing; and, renovation of existing housing using MILCON funding.

2.2.1 MILCON Funding for Housing Construction

Traditional military construction using appropriated funds, or MILCON funding, for the construction of replacement and/or new housing was identified as an alternative for Beale AFB. Traditional housing MILCON funding for bringing housing up to current standards is not funded sufficiently to meet the goal (USAF, 2003). This is possibly due to the existence of privatization initiatives. Therefore, the sole use of MILCON funding to correct the housing deficit was eliminated from further consideration.

2.2.2 Renovate Existing Housing with MILCON Funding

The Air Force also considered use of MILCON funding to renovate existing government-controlled housing units to alleviate space deficiencies in the living areas. Enlarging the size of each unit to meet current living space requirements was determined to be difficult within the existing housing layout. The interior finishes, lighting, utility systems, walls, parking, and privacy fences of the units would require upgrading or replacement. The economic life of the renovated units would be extended for a period of approximately 20 years. Annual maintenance and repair costs would be reduced. The estimated cost to perform this major renovation was determined to exceed the 70 percent threshold of the cost to construct a new home[1]. This alternative would require MILCON funding, which would not be sufficient to meet the DoD 2010 housing goal. For these reasons, this alternative was eliminated from further consideration.

2.3 BACKGROUND INFORMATION

The Air Force proposes to contract for the renovation and demolition of existing housing units, and construction of related community enhancements (i.e., landscape and recreational features) on Beale AFB. A total of 1,553 existing units would be conveyed to a Project Owner who would be responsible for

[1] In accordance with Chapter 1.13.1.3 of AFI 32-6002 *Family Housing Planning, Programming, Design, and Construction* (27 May 1997), the Air Force approves projects that exceed 70 percent of the replacement costs or $100,000 per unit. This criterion is one of the guidelines for determining MFH revitalization actions as defined in the 1999 Air Force Family Housing Master Plan. Units with an improvement-to-replacement cost equal to or greater than 0.70 will be replaced if required (USAF, 1999h).

renovation and maintenance activities. Locations of the housing areas and parcels of undeveloped land in the housing area are shown on Figure 2.

In addition to conveyance of existing units to a Project Owner, the Air Force would lease land to the Project Owner for 50 years. The area that could be leased is comprised of four parcels of land as shown in Table 2 and on Figure 2. Areas and facilities that would be retained by the Air Force (not leased) are shown in Table 3. While the housing units to be conveyed are located on Parcels A1 through A4 (hereinafter referred to as Parcel A), the Project Owner would have the option of leasing Parcels B, C or D).

Table 2. Land Available for Lease (Housing Privatization on Beale AFB)

Parcels to be Leased	Description	Size
A1, A2, A3 and A4	Housing Area and Undeveloped Land to the Eastern Boundary of the Base including Lakeview Housing	912 acres
B	Pastures South of Beale East housing area	186 acres
C	Club Beale Area	37 acres
D	Lake House Area	5 acres
	Total	**1,140 acres**

Note: Refer to Figure 2.
AFB Air Force Base
MFH Military Family Housing

Table 3. Land to be Excluded, Housing Privatization on Beale AFB (Proposed Action)

Area to be Excluded	Description
EX1	Base Schools (land leased to Wheatland School District)
EX2	Child Development Center, Youth Center and Fire Station, Chapel
EX3	Transient Living Facilities (TLF)
EX4	100 Housing Units (composed of six-plexes)
EX5	Foothills Chapel and associated parking lot

Note: Refer to Figure 2.
AFB Air Force Base
EX Excluded Area
MFH Military Family Housing
TLF Transient Living Facilities

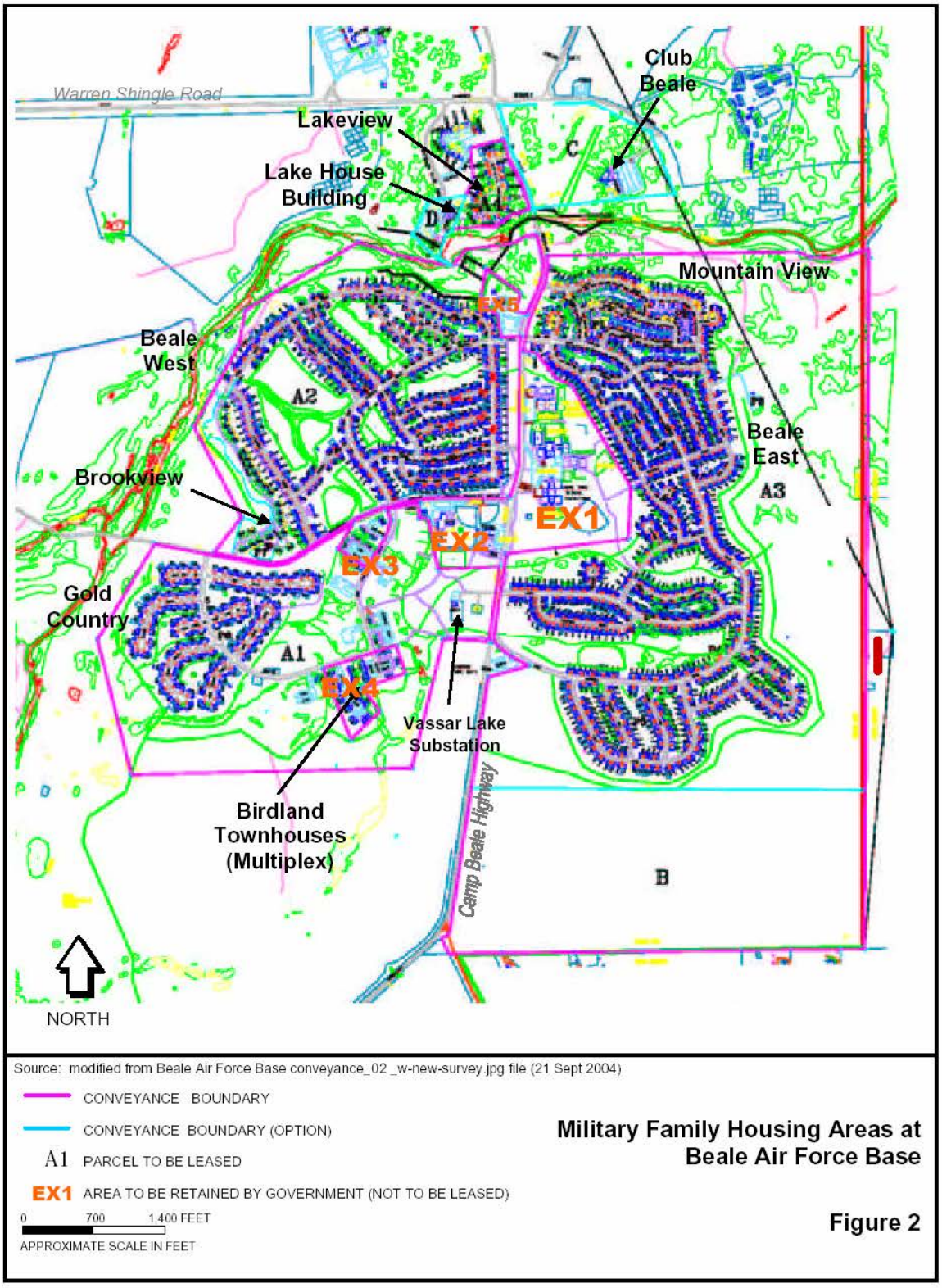

Figure 2. Military Family Housing Areas at Beale AFB, California

The units to be conveyed would be located within seven existing housing areas as shown on Figure 2. A summary of the existing units in the housing areas that would be conveyed is provided in Table 4. Housing would be replaced at a lower density than current conditions.

Table 4. Summary of Existing Housing Units to Be Privatized

Housing Area	Year(s) Built	Unit Type	No. of Units
Lakeview	1958	SFH	15
Beale West	1960 – 1962	SFH	380
Gold Country	1975	Duplex	200
Birdland Townhouses (Multi-plex)	1960 – 1962	4- and 6-plex	100
Beale East	1960 – 1962	Duplex	679
Mountain View	1998	SFH	131
Brookview	2001 – 2002	SFH	48
Total Housing Units at Beale AFB			1,553

AFB Air Force Base
MFH Military Family Housing
No. number
SFH single-family home

2.4 DETAILED DESCRIPTION OF THE PROPOSED ACTION

Demolition and renovation activities associated with the Proposed Action would require approximately 6.5 years, as summarized in Table 5. The leasing of housing units and property management services would be provided by the Project Owner.

Table 5. Summary of Housing Privatization at Beale AFB, Proposed Action

Activity	Number
Existing Units to be Conveyed	1,553
Units to be Renovated (Minor)[a]	179
Units to be Renovated (Major)	1,165
Units to be Demolished	209
Replacement Units to be Constructed	0
Replacement Units to be Constructed on Undeveloped Land	0
Acres of Undeveloped Land to be Used	0
Resultant Number of Housing Units	1,344
Duration	~6.5 years

[a] Includes 131 units at Mountain View Housing Area and 48 units at Brookview Housing Area.
AFB Air Force Base
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2.4.1 Renovation of Existing Housing Units

It is anticipated that the privatization project would begin with minor renovations of the existing 179 housing units and improvement of community features within the Mountain View and Brookview housing areas. Improvements would consist of:

- Burying overhead power lines;
- Adding crosswalks at the intersection of the neighborhood streets and East Garyanna Drive;
- Adding jogging and bicycle trails;
- Connecting the neighborhood sidewalks to a housing wide trail network;

- Adding picnic area and lighted basketball courts and playground area(s); and,
- Enhancing existing landscaping with shade trees, low-maintenance/drought-tolerant foundation plantings, and evergreen shrubs to increase privacy around units.

To meet Air Force housing standards, many of the housing units require enlargement of living spaces. The renovated housing will be designed to provide modern kitchen, living room, family room, bedroom and bath configurations with ample interior and exterior storage. Living units will be expanded to meet current space authorizations in accordance with current DoD and Air Force housing guidance. Housing units would be designed and renovated to comply with the Air Force noise level reduction (NLR) policy to attain interior noise levels of day-night average sound level (DNL) of 45 A-weighted sound level (dBA) or less. Neighborhood enhancements such as outdoor recreational areas would be designed to create a modern living environment.

The existing street layout would be used to the maximum extent possible, although street modifications would be included to improve vehicular and pedestrian movement. The housing would include garages and parking areas, curbs and gutters, sidewalks, streetlights, landscaping where appropriate, and recreational spaces (i.e., playgrounds/tot lots, picnic areas and open spaces).

Planned utility improvements include upgrade of the existing water, sewer, and storm drain mains. Utility service lines (water, sewer, electricity) would be conveyed to the Project Owner from the main to the buildings. The Air Force would retain ownership of utility mains, unless replaced by the Project Owner. All above ground electrical lines servicing the housing areas would be placed underground by the Project Owner.

2.4.2 Demolition of Existing Buildings

The Proposed Action would include demolition of existing housing units in any of the seven housing areas. An investigation to determine the presence of lead based paint (LBP) and asbestos-containing material (ACM) will be conducted by the Project Owner before demolition of buildings. Demolition of buildings that contain these materials will be conducted in accordance with applicable regulatory requirements to ensure proper handling and disposition of hazardous materials.

During demolition, existing mature trees within the housing area would be retained in place to the maximum extent practicable. Removal of mature trees would be avoided wherever possible in order to retain the aesthetic value of the housing area. It is possible that some mature trees may be removed if determined to be improperly placed, or growing too close to housing units that would be renovated.

2.4.3 Lease of Undeveloped Land

In addition to conveyance of existing housing units, the Air Force would lease up to 954 acres of land to the Project Owner for a period of 50 years. The land to be leased includes undeveloped land surrounding the existing housing areas and extends to the eastern boundary of the Base. The undeveloped land to be leased is shown as Parcel A on Figure 2.

- Parcel A includes approximately 912 acres of developed and undeveloped land. Parcel A includes all seven existing housing areas on developed land. Undeveloped land is located between the housing areas and areas southeast of Mountain View and Beale East.

- No housing would be constructed on the 186 acres of undeveloped land on Parcel B as a result of the Proposed Action.

2.4.4 Conveyance of Additional Buildings and Structures

The Proposed Action would include conveyance of three non-housing facilities on Beale AFB:

- The Vassar Lake Substation in Parcel A1 would be conveyed as part of the Proposed Action. This facility consists of concrete pads with transformers and the MFH Maintenance Facility

(Building 3294) and is located northwest of the Vassar Lake Gate at Camp Beale Highway and East Garryanna Drive;

- Club Beale (Building 5800, Parcel C), an abandoned facility located northeast section of the housing area and south of Warren Shingle Road, is in an option area and could be conveyed for potential use as the lessee's maintenance building; and,

- Lake House Area (Parcel D), located west of the Lakeview housing area, is in an option area and could be conveyed for potential use as a Community Center; this parcel includes the former Officers Club (Facility No. 2340, currently not in use), bathhouse and swimming pool (Buildings 2323 and 2322).

In addition to the buildings that would be conveyed, the Air Force would also convey the existing sewer line that crosses Dry Creek, south of the Lake House building.

2.4.5 Housing Area Management

The Proposed Action would include an on-base Lessee Administration Office and a Lessee Maintenance Facility to be operated by the Project Owner. The Project Owner would be responsible for providing and maintaining open space, outdoor recreation areas, playgrounds and landscaping within the housing communities.

The Project Owner would identify any required construction permits and ensure that permits are obtained from the applicable base, local, state, or federal agency. All recyclable waste generated during renovation and operations would be recycled according to the type of material.

The Project Owner would operate the housing area over an anticipated period of 50 years. The Project Owner would be responsible for periodic renovations and upgrades over this time period.

2.4.6 Occupancy of the Privatized Housing

The 1,444 housing units on Beale AFB would continue to provide housing for approximately 5,780 persons based on an average family size of four. It is projected that families required to vacate these units for the planned renovation and demolition would be housed in other on-base housing units, whenever possible. The Air Force is currently in the process of renovating housing units that would become available to military personnel. It is anticipated that during the housing privatization project, approximately 250 families (approximately 1,000 people) each year[2] would be required to temporarily reside in off-base housing in the local community until renovated housing is available.

While it is anticipated that the privatized housing would be fully occupied by military personnel, units may be rented to other eligible tenants based on a priority placement plan. Units will be held open for base housing referrals unless occupancy levels fall below ninety-five percent for three consecutive months. When vacancies meet these criteria, units can be rented to eligible tenants at market rent. Units would be rented through the use of a priority list (in descending order) as follows: referred military families, other active duty members, federal Civil Service employees, retired military members/retirees, Guard and Reserve military member/families, retired federal Civil Service, DoD Project Owner/permanent employees (U.S. citizen), and the general public.

2.5 DESCRIPTION OF THE NO ACTION ALTERNATIVE

Under the No Action Alternative, no housing units would be constructed or renovated by a Project Owner at Beale AFB. Military personnel and dependents would continue to reside in the existing units on the Base. The No Action Alternative would not fulfill the need for the Air Force to provide suitable housing for its military members, nor would it meet the DoD goal of upgrading all inadequate military housing by the

[2] This number would vary depending on the construction schedule and the resulting availability of renovated housing units on the Base at any particular time.

year 2010. The No Action Alternative, or maintaining the status quo, is not desirable because many units are deteriorating and do not meet Air Force housing standards or current building codes.

2.6 DESCRIPTION OF ALTERNATIVE 1 (CONSTRUCTION)

The Air Force is also considering an alternative to the Proposed Action that would result in replacement of existing housing on Beale AFB. Alternative 1 (Construction) would result in the use of a Project Owner to demolish and replace housing units on Beale AFB. No major renovations of existing units would occur. Alternative 1 (Construction) would result in 200 replacement housing units constructed on 186 acres of undeveloped land in Parcel B. Parcel B was formerly used as a grazing management area, although the area is not currently grazed. Demolition and construction activities associated with Alternative 1 would require approximately 6.5 years, as summarized on Table 6.

Table 6. Summary of Housing Privatization at Beale AFB, Alternative 1

Activity	Number
Existing Units to be Conveyed	1,553
Units to be Renovated (Minor)[a]	179
Units to be Renovated (Major)	0
Units to be Demolished	1,374
Replacement Units to be Constructed	965
Replacement Units to be Constructed on Undeveloped Land	200
Acres of Undeveloped Land to be Used	186
Resultant Number of Housing Units	1,344
Duration	6.5 years

[a] Includes 131 units at Mountain View Housing Area and 48 units at Brookview Housing Area.

AFB Air Force Base
MFH Military Family Housing

The replacement housing units would be constructed in the same area in which most of the existing units are located, as "in-fill" housing, or adjacent to housing areas. The housing unit design and site layout has not been developed at this time.

The lease of undeveloped land, conveyance of additional buildings, housing area management, and occupancy of the replacement housing described in Subchapters 2.4.3, 2.4.4, 2.4.5, and 2.4.6, respectively, would apply to this alternative.

2.7 DESCRIPTION OF ALTERNATIVE 2 (MAJOR RENOVATION AND CONSTRUCTION)

The Air Force is also considering the alternative of a combination of approximately 60 percent renovation and 40 percent replacement of existing housing on Beale AFB. Alternative 2 would result in the use of a Project Owner to renovate as well as demolish and replace housing units on Beale AFB. Alternative 2 would also result in 200 replacement housing units constructed on undeveloped land in Parcel B (similar to Alternative 1). Demolition and construction activities associated with Alternative 2 would require approximately 6.5 years, as summarized on Table 7.

Table 7. Summary of Housing Privatization at Beale AFB, Alternative 2

Activity	Number
Existing Units to be Conveyed	1,553
Units to be Renovated (Minor)[a]	179
Units to be Renovated (Major)	754
Units to be Demolished	820
Replacement Units to be Constructed	411
Replacement Units to be Constructed on Undeveloped Land	200
Acres of Undeveloped Land to be Used	186
Resultant Number of Housing Units	1,344
Duration	~6.5 years

[a] Includes 131 units at Mountain View Housing Area and 48 units at Brookview Housing Area.

The replacement housing units would be constructed in the same area in which most of the existing units are located, as "in-fill" housing, or adjacent to housing areas. The unit design and site layout has not been developed at this time.

The lease of undeveloped land, conveyance of additional buildings, housing area management, and occupancy of the replacement housing described in Subchapters 2.4.3, 2.4.4, 2.4.5, and 2.4.6, respectively, would apply to this alternative.

2.8 COMPARISON OF ALTERNATIVES

Each of the alternatives evaluated in this EA are summarized in Table 8.

Table 8. Summary of Housing Privatization Alternatives at Beale AFB

Activity	Proposed Action	Alternative 1	Alternative 2	No Action Alternative
Units to be Renovated	1,344	179	933	0
Units to be Demolished	209	1,374	754	0
Replacement Units to be Constructed (on-site)	0	965	411	0
Units to be Constructed on Undeveloped Land (Parcel B)	0	200	200	0
No. of Acres of Undeveloped Land to be Converted to Housing Area	0	186	186	0

2.9 OTHER ACTIONS ANNOUNCED FOR BEALE AFB AND THE SURROUNDING COMMUNITY

A cumulative impact, as defined by the Council on Environmental Quality (CEQ) (40 CFR 1508.7), is the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of which agency (federal or non-federal) or person undertakes such actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.

Other projects planned for Beale AFB and the surrounding community that could occur during the same time period as the Proposed Action are identified in Table 9 and shown on Figure 3. Planned projects on Beale AFB that may occur during the same time as the Proposed Action are primarily associated with the beddown of the Global Hawk aircraft. The Global Hawk program would be phased over a 12-year program and is estimated to add a maximum of 1,673 jobs to the region of influence. Although the initial

beddown of Global Hawk would use existing facilities, the final build-up phase (through 2012) would include four construction projects as identified in Table 9.

Table 9. Other Actions Announced for Beale AFB and the Surrounding Community

Construction Project	Year
On-Base Projects	
Visiting Quarters	2005/2006
Flightline Hangar Upgrade	2004/2006
Fitness Center	2006
Consolidated Headquarters Center	2006
Global Hawk Main Operating Base Beddown (Final Build-Up Phase)	
(1) New Dining Facility	2004
(2) Renovation of Storage and Dining Area	2004/2005
(3) Child Development Center	2005/2006
(4) Global Hawk Dormitory	2005/2006
Off-Base Project	
Yuba Highlands Housing Development	TBD

TBD (To Be Determined) Approval of funding for this activity and/or estimated construction date is not known at this time.

The Yuba Highlands Development, a major housing development project, is planned for the Yuba Highlands area located northeast of Beale AFB and south of Hammonton-Smartville Road. The Yuba Highlands Development project is in the preliminary planning stages, and a project schedule has not been determined. The proposed project includes a 5,100-home development that would include twenty neighborhoods, parks, schools, and commercial areas (Yuba Foothills, 2002).

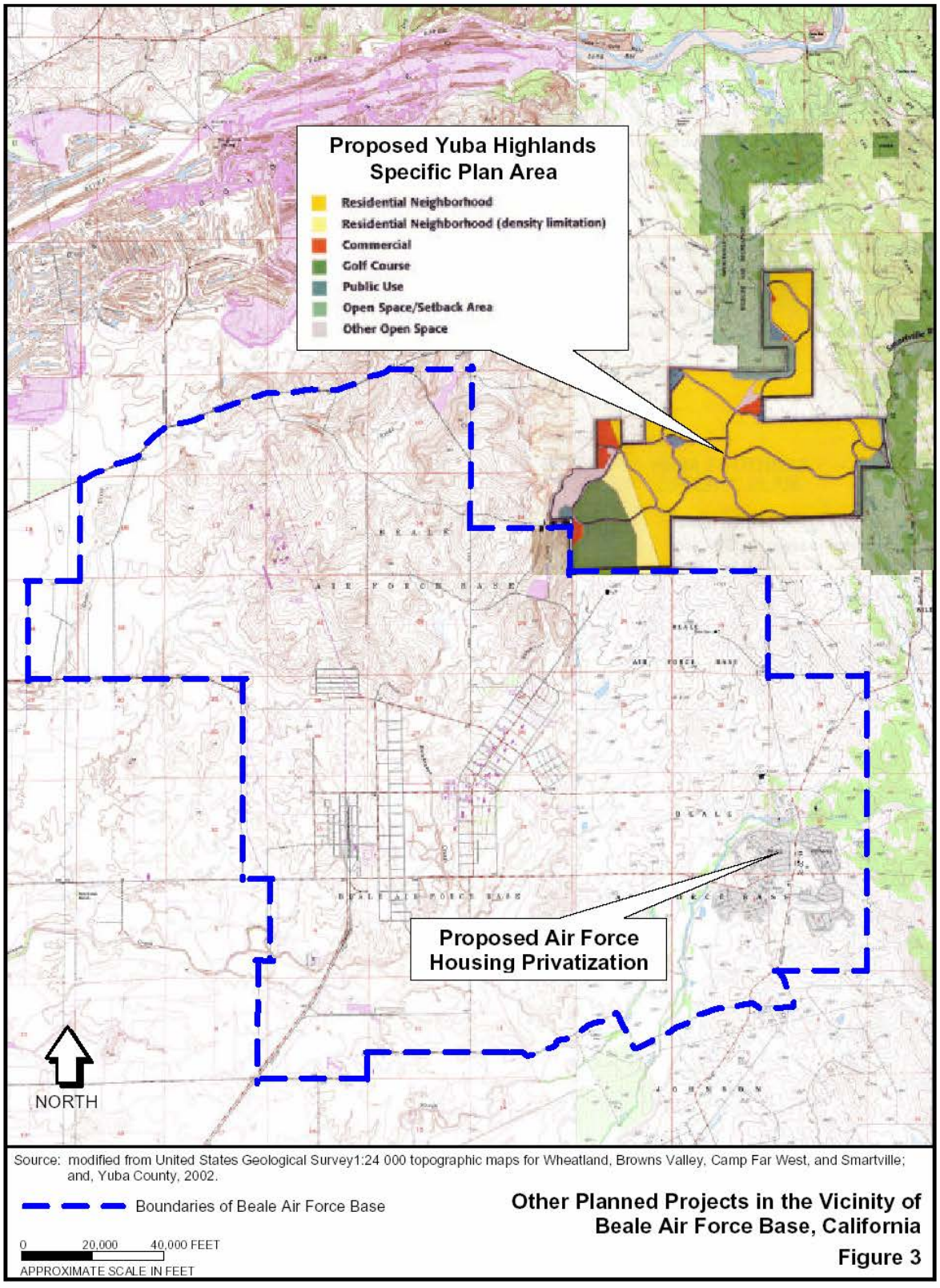

Figure 3. Other Planned Projects in the Vicinity of Beale AFB

CHAPTER 3

AFFECTED ENVIRONMENT

This chapter describes the existing environmental media that could be affected by, or could affect the Proposed Action, No Action Alternative, and the Alternative Actions at Beale AFB. Only Base-specific environmental components that could be impacted by the action are described in detail in this chapter.

3.1 CURRENT MISSION

The mission of Beale AFB is to provide national and theater command authorities with timely, reliable, high-quality, high-altitude reconnaissance products. The 9th Reconnaissance Wing, 940th Air Refueling Wing and 7th Space Warning Squadron are stationed at Beale AFB. The Air Force must meet the ongoing and projected need for family housing on the Base with units that meet current Air Force housing standards.

3.2 NOISE

Noise is defined as sound that is undesirable because it interferes with speech and hearing, is intense enough to damage hearing, or is otherwise annoying. Because the human ear is not equally sensitive to sound at all frequencies, a frequency-dependent adjustment, called A-weighting and expressed as the A-weighted sound level (dBA), has been devised to measure sound similar to the way the human hearing system responds. The day-night average sound level (DNL) metric is a measure of the total community noise environment. DNL is the average A-weighted sound level over a 24-hour period, with a 10 dBA adjustment added to the nighttime levels (between 10:00 p.m. and 7:00 a.m.).

Noise annoyance is defined by the USEPA as any negative subjective reaction to noise by an individual or group. Based on studies of noise and annoyance levels, it has been found that 15 to 25 percent of persons exposed on a long-term basis to DNL of 65 to 70 dBA would be expected to be highly annoyed by noise events.

An outdoor DNL of 75 dBA is considered the threshold above which the risk of hearing loss is evaluated. The average change in the threshold of hearing for people exposed to DNL equal or greater than 75 dBA was evaluated following the guidelines recommended by the Committee on Hearing, Bioacoustics, and Biomechanics. Results indicated that an average of 1 dBA hearing loss could be expected for people exposed to DNL equal to or greater than 75 dBA. For the most sensitive 10 percent of the exposed population, the maximum anticipated hearing loss would be 4 dBA. These hearing loss projections must be considered conservative as calculations are based on an average daily outdoor exposure of 16 hours (7:00 a.m. to 10:00 p.m.) over a 40-year period. It is doubtful any individual would spend this amount of time outdoors within the DNL equal to or greater than 75 dBA noise exposure level.

3.2.1 Baseline Noise Conditions

The principal source of noise at Beale AFB is aircraft operations, which results in direct and indirect effects on the surrounding community. The Beale Air Force Base Comprehensive Land Use Plan, prepared by the Airport Land Use Commission of Sacramento, Sutter, Yolo, and Yuba Counties (1993), designates a series of restrictive zones surrounding the airport facility, both on and off the Base. These restrictive zones include land use restrictions designed to protect the navigable airspace around the installation for aircraft safety, minimize the number of people exposed to noise from aircraft operations, and minimize the number of people exposed to hazards related to aircraft operation and potential

accidents. The U.S. Air Force also maintains a 3,000-foot by 3,000-foot clear zone free of development uses at each end of the Base runway (USAF, 2005).

The main base exhibits average noise levels between 70 dB and 75 dB. The family housing area, which is furthest from the flightline, has ambient noise levels below 65 dB. Motor vehicle traffic is another source of noise near busy intersections and during morning and afternoon commute times (USAF, 2005).

3.2.2 Future Noise Conditions

Future noise levels at Beale AFB would not be expected to change as a result of planned Global Hawk beddown and operations. The amount of land encompassed by the 65 DNL noise contour and greater is not projected to increase on Beale AFB. Under planned noise levels, all existing family housing areas would be expected to continue to experience ambient noise below 65 dB.

3.3 LAND USE

The Air Force has prepared an Integrated Natural Resources Management Plan (INRMP) for Beale AFB. The INRMP has identified land management units on the Base that would require special considerations or unique management activities.

3.3.1 Existing Land Use

Developed areas on Beale AFB are divided into three functional areas: main base, flightline and housing. The flightline area located in the northwestern portion of the Base consists of buildings and areas that support administrative, industrial, commercial and recreational land uses. The main base, located in the central portion of Beale AFB contains the support organization, administrative functions and golf course. The housing area, on the southeastern portion of the Base is composed of developed housing communities and community facilities.

The General Plan for Beale AFB has identified a development envelope around the housing area. The development envelope encompasses areas of existing and planned development to distinguish this area from areas containing forests and woodlands where no development is allowed. The development envelope of the housing area does not include the open space grasslands east of Mountain View housing area and southeast of Beale East housing area (USAF, 1998e).

Land uses on Beale AFB are described in terms of improved, semi-improved and unimproved grounds (USAF, 2005). Seven land management units on the Base require special considerations or unique management activities: Development (Existing and Future); Habitat (Conservation and Management); and Open Space (Grazing, Proposed Grazing and No Grazing). Development and open space land management units found within the area of the Proposed Action. Outlease of land for grazing is administered by the 9th Civil Engineering Squadron (CES) Environmental Flight (CEV) and the 9th CES Real Property Element (CECR) at Beale AFB.

The area of the Proposed Action and alternatives includes primarily developed land and open space. Most of the existing land use in the privatization area is developed. The easternmost portion of Parcel A (east of the Beale East housing area to the Base boundary) has not been used for grazing in the past three years. Portions of Parcel B, which may be used for housing construction under Alternatives 1 or 2, is designated, and has previously been used, as Grazing Management Area C-7. This designation signifies that grazing is allowed from November 1 through May 31 of the year. Parcel B contains undeveloped land classified as Development (Future) and Open Space (Grazing). Although Parcel B has been managed as grazing land in the past, no grazing has occurred on this land in the past three years. These open spaces have been used as fire breaks and buffer land.

3.3.2 Future Land Use

The future land use plan for Beale AFB includes continuation of existing uses and designation of open space (improved and unimproved) as components of future development activities within the Family Housing General Plan Development Area. The area of the Proposed Action and Alternatives is located primarily within the development envelope with the exception of the portion of Parcel A east of the Beale East housing area to the Base boundary that is designated as proposed for grazing. There are no plans for grazing on any portion of Parcel A. There are no open space areas proposed for grazing in Parcel B south of Beale East housing (Christopherson, 2005).

3.3.3 Off-Installation Land Use

Although the Beale AFB area of influence associated primarily with airfield operations extends off base into the community of Wheatland south of the installation, land uses surrounding Beale AFB are compatible with land uses on the installation. To the south and west of the installation boundary are large tracts of agricultural land abutting the airfield, accompanied housing and open space. To the north of the flightline area are the Yuba Gold Fields, an industrial mining operation. This land use is compatible with the industrial uses of the flightline area in the northeast sector of the installation. To the north of the main base and housing areas, there are rural areas with development under control of the River Highlands Community Plan (Yuba County). This plan permits residential development with a density ranging from one home per 40 acres to two homes per acre. Land uses permitted by this plan are compatible with the open space border to the north of the main base and housing areas. To the east of the housing area and adjacent to the Base boundaries is the Spenceville Wildlife Management and Recreation Area, a land use that is compatible with the open space east and south of the Beale AFB housing area. The Spenceville Wildlife Management Area is managed by the California Department of Fish and Game.

3.4 AIR QUALITY

Air quality in any given region is measured by the concentration of various pollutants in the atmosphere, typically expressed in units of parts per million (ppm) or in units of micrograms per cubic meter ($\mu g/m^3$). National Ambient Air Quality Standards (NAAQS) have been established for six air criteria air pollutants including carbon monoxide (CO), nitrogen oxides (NO_x, measured as nitrogen dioxide, NO_2), ozone (O_3), sulfur oxides (SO_x, measured as sulfur dioxide, SO_2), lead (Pb), and particulate matter equal to or less than 10 microns in aerodynamic diameter (PM_{10}). There are many suspended particles in the atmosphere with aerodynamic diameters larger than 10 microns, collectively referred to as total suspended particulates (TSP). Table 10 identifies NAAQS and ambient air quality standards that have been adopted by the California Air Resources Board.

3.4.1 Local Air Quality

The USEPA classifies the air quality within an area according to whether or not the concentration of criteria air pollutants in the atmosphere exceeds primary or secondary NAAQS. All areas within each air quality control region (AQCR) are assigned a designation of either attainment or nonattainment for each criteria air pollutant. An attainment designation indicates that the air quality within specific areas of an AQCR is either “unclassified” or that the air quality is as good as or better than NAAQS for individual criteria air pollutants. Unclassified indicates that the air quality within an area cannot be classified and is therefore treated as attainment. Nonattainment indicates that concentration of an individual criteria air pollutant at a specific location exceeds primary or secondary NAAQS. Before a nonattainment area is eligible for reclassification to attainment status, the state must demonstrate compliance with NAAQS in the nonattainment area for three consecutive years and, through extensive dispersion modeling, demonstrate that attainment status can be maintained in the future even with community growth.

Table 10. National and State Ambient Air Quality Standards

Criteria Pollutant	Averaging Time	Primary NAAQS[a,b,c]	Secondary NAAQS[a,b,d]	California Standards[a,b]
Carbon Monoxide	8-hour	9 ppm (10 μg/m^3)	No standard	9 ppm (10 μg/m^3)
	1-hour	35 ppm (40 μg/m^3)	No standard	20 ppm (23 μg/m^3)
Lead	Quarterly	1.5 μg/m^3	1.5 μg/m^3	1.5 μg/m^3
Nitrogen Oxides (measured as NO_2)	Annual	0.053 ppm (100 μg/m^3)	0.053 ppm (100 μg/m^3)	0.053 ppm (100 μg/m^3)
Ozone	8-hour	0.08 ppm	0.12 ppm (235 μg/m^3)	0.08 ppm
	1-hour	0.12 ppm (235 μg/m^3)	0.12 ppm (235 μg/m^3)	0.12 ppm (180 μg/m^3)
Particulate Matter (measured as PM_{10})	Annual Arithmetic Mean	50 μg/m^3	50 μg/m^3	30 μg/m^3
	24-hour	150 μg/m^3	150 μg/m^3	50 μg/m^3
Sulfur Oxides (measured as SO_2)	Annual 24-hour 3-hour	0.03 ppm (80 μg/m^3) 0.14 ppm (365 μg/m^3) No standard	No standard No standard 0.50 ppm (1,300 μg/m^3)	0.03 ppm 0.14 ppm No standard

[a] National and state standards, other than those based on an annual or quarterly arithmetic mean, are not to be exceeded more than once per year. The ozone standard is attained when the expected number of days per calendar year with maximum hourly average concentrations above the standard is less than or equal to one.

[b] The NAAQS and California standards are based on standard temperature and pressure of 25 degrees Celsius and 760 millimeters of mercury.

[c] National Primary Standards: The levels of air quality necessary to protect the public health with an adequate margin of safety. Each state must attain the primary standards no later than three years after the state implementation plan is approved by the USEPA.

[d] National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant. Each state must attain the secondary standards within a "reasonable time" after the state implementation plan is approved by the USEPA.

μg/m^3 micrograms per cubic meter
NAAQS National Ambient Air Quality Standards
NO_2 nitrogen dioxide
PM_{10} particulate matter equal to or less than 10 microns in aerodynamic diameter
ppm parts per million

Beale AFB is located in the Northern Sacramento Valley Air Basin, which includes Shasta, Tehama, Glenn, Butte, Colusa, Yuba, and Sutter Counties. The Feather River Air Quality Management District (AQMD) is responsible for implementing and enforcing state and federal air quality regulations in the Yuba County and Sutter County portions of the NSVAB.

The Feather River AQMD has primary jurisdiction over air quality and stationary source emissions at Beale AFB. The Base is located in the central portion of the Feather River AQMD that encompasses Yuba and Sutter counties. This district is within the Sacramento Valley Intrastate AQCR that includes all of Butte, Colusa, Glenn, Sacramento, Sutter, Tehama, Yolo, and Yuba counties as well as portions of Solano and Shasta counties. Beale AFB is located north of metropolitan Sacramento. Beale AFB contributes less than one percent of AQCR emissions for all criteria pollutants, except for SO_2 for which 1.4 percent is contributed. Regional air pollutant emissions for Beale AFB and the AQCR are shown in Table 11.

Table 11. Regional Air Pollutant Emissions at Beale AFB and AQCR

Location and Source(s)	Units	CO	VOC	NO_x	SO_2	PM_{10}
Sacramento Valley Intrastate AQCR	tons/yr	446,249	73,292	88,330	1,898	80,140
Beale AFB	tons/yr	987.79	703.29	216.68	26.81	23.58

Sources: CARB, 2004 ; USAF, 2001d (includes stationary and mobile emissions)
AFB Air Force Base
AQCR Air Quality Control Region
CO carbon monoxide
NO_x nitrogen oxides
PM_{10} particulate matter equal to or less than 10 microns in aerodynamic diameter
SO_2 sulfur dioxide
VOC volatile organic compounds
yr year

Air quality in the Yuba County portion of the Feather River AQMD has been designated as a maintenance area for ozone and attainment for PM_{10}. The southern portion of the Feather River AQMD (southern Sutter County) is in severe nonattainment with the one-hour federal ozone standard. The remainder of the AQMD, including Beale AFB, is a maintenance area (USAF, 2001d).

Air pollutant emissions at Beale AFB include stationary and mobile sources. Stationary source emissions include jet engine testing (off the aircraft), external combustion sources, degreasing operations, storage tanks, fueling operations, heating, solvent usage and surface coating. Stationary sources of emissions at Beale AFB are also generated by fire training exercises, fuel cell maintenance, painting operations, welding operations, and woodworking facilities. Mobile sources of air pollutants are primarily from aircraft operations, aerospace ground equipment, ground support equipment, and aircraft maintenance operations performed with the engines still mounted on the aircraft. Mobile emissions are also generated by automobiles, golf carts, and grounds maintenance equipment.

3.5 WATER RESOURCES

3.5.1 Surface Water

Beale AFB has three main creeks that serve as the principal drainage system for the area:

- Reeds Creek along the northwest border of the Base;
- Hutchinson Creek, in the central portion, has tributaries that drain portions of the flight line, training and main base areas; and,
- Dry Creek, in the southeast, with tributaries that receive runoff from the housing areas.

The creeks are naturally intermittent; however, Dry Creek receives supplemental releases from the Nevada Irrigation District upstream of Beale AFB and thus, maintains flow all year. These creeks originate in the north and east and generally flow across the Base from northeast to southwest.

The Air Force has prepared a Storm Water Pollution Prevention Plan (SWPPP) for Beale AFB that identifies pollutant sources that may affect the quality of storm water associated with construction activities and infrastructure requirements on the Base. The plan identifies best management practices (BMP) to reduce pollutants in storm water discharges. Physical, structural and managerial BMPs are described in the SWPPP to minimize or eliminate the potential for spills and leakage of construction materials and erosion of disturbed areas by water and wind. The SWPPP includes: erosion and sediment control; non-storm water management; post-construction storm water management; waste management and disposal; maintenance, and, employee training to inspect BMPs.

Surface water quality on the Base has low mineral content (i.e., total dissolved solids) and is unimpaired by any significant sources of pollution. The existing water supply (11 million gallons per day [mgd] maximum capacity) and wastewater treatment system (5 mgd capacity) are adequate to meet Base demand, and the Base is expanding its use of reclaimed, treated wastewater for landscaping irrigation. The Air Force plans to reduce storm water runoff flowing into the wastewater treatment plant as a result of cross connections and infiltration of storm drainage and sanitary sewer flows.

3.5.2 Groundwater

Groundwater in the project region historically flowed from the Sierra Nevada foothills westward toward the Feather and Sacramento Rivers. Groundwater generally flows west to southwest across the Base. The groundwater tapped for Base use is thought to be unconfined except where local clay/silt lenses cap the aquifer. Fresh water can be found between 300 and 500 feet below the surface across most of the Base (USAF, 2005).

Groundwater quality on Beale AFB meets state and federal primary water quality standards at all monitoring locations except at a limited number of isolated hazardous waste sites. Groundwater in the southern portion of the Base receives recharge from Dry Creek, Best Slough, Hutchinson Creek, precipitation east of the Base, and the Bear River south of the Base. Water quality was found to be higher in this area than in the central portion of the Base but lower than in the northern area for all contaminants measured (USAF, 2005).

Water for Base use is taken from nine wells located west of the flightline area, which is in the northern base aquifer where water quality is highest. Water from these wells, however, has been found to have levels of manganese that exceed the national secondary standard for manganese. This metallic element adversely affects taste and accumulates as deposits in distribution systems (USAF, 2005).

3.6 HAZARDOUS MATERIALS AND WASTES

3.6.1 Hazardous Materials

Hazardous materials are those substances defined by the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), as amended by the Superfund Amendments and Reauthorization Act (SARA), and the Toxic Substances Control Act (TSCA). Hazardous wastes are defined by the Solid Waste Disposal Act as amended by the Resource Conservation and Recovery Act (RCRA), which was further amended by the Hazardous and Solid Waste Amendments. In general, both hazardous materials and hazardous wastes include substances that, because of their quantity, concentration, physical, chemical, or infectious characteristics, may present substantial danger to public health or welfare or to the environment when released or otherwise improperly managed.

Hazardous materials management at Air Force installations is established primarily by AFI 32-7080, *Pollution Prevention Program.* AFI 32-7080 incorporates the requirements of all federal regulations, other AFIs, and DoDDs, for the reduction of hazardous material uses and purchases. The hazardous materials addressed by the instruction include procurement of ozone depleting substances (ODS) and of products containing the 17 chemicals listed under the voluntary 33/50 USEPA Industrial Toxics Program (EPA 17).

Hazardous materials used in the housing area at Beale AFB are limited to small quantities. The types of hazardous materials typically used in the housing areas include paints and thinners, small volumes of petroleum products, pesticides, cleaning solvents, and janitorial supplies.

The housing maintenance contractor occupies Building 3294 located off Camp Beale Highway within the housing area boundaries. This contractor utilizes the building as an office and storage area. Small amounts of hazardous materials and petroleum products are stored at the building. These materials include products normally used for housing maintenance/cleaning (paints and thinners, petroleum products for fuel, cleaning solvents, and janitorial supplies).

Hazardous materials and/or petroleum-based products have not been released within the housing area on Beale AFB. A known release of gasoline occurred from the Army & Air Force Exchange Service

(AAFES) gasoline station. This gas station is located at the south end of the housing area, outside the conveyance boundaries. The Air Force has implemented remedial controls at the site, and is defining the extent of the gasoline in the local groundwater. In addition to the AAFES gasoline station, other sites and areas have been identified by the Base to have released hazardous materials and/or petroleum products at various areas surrounding the housing area. These sites are being managed in accordance with the base Environmental Restoration Program (ERP), as discussed in Subchapter 3.6.6.

3.6.2 Hazardous Wastes

Unless otherwise exempted by CERCLA regulations, RCRA Subtitle C (40 CFR Parts 260 through 270) regulations are administered by the USEPA and are applicable to the management of hazardous wastes. Hazardous waste must be handled, stored, transported, disposed, or recycled in accordance with these regulations.

Beale AFB is a large-quantity hazardous waste generator, with wastes coming from industrial activities primarily associated with aircraft operations and maintenance. Hazardous wastes are managed in accordance with the Beale AFB Hazardous Waste Management Plan. Hazardous waste management is supervised by the Environmental Flight (9 CES/CEV).

The Air Force conducts routine Environmental, Safety and Occupational Health Compliance and Management Program (ESOHCAMP) assessments to comprehensively evaluate its operations to identify problems and provide recommendations to remedy problem areas.

Bulk hazardous wastes have not been, nor are they currently, stored or generated within the housing area at Beale AFB. Vehicle maintenance performed by housing area residents is expected to be limited to simple maintenance activities, such as oil changes. Residents who perform these types of activities are instructed in the proper disposal of generated automotive wastes. In addition, petroleum and hazardous wastes are not expected to be generated at the housing maintenance Project Owner facility.

3.6.3 Asbestos

Asbestos is regulated by the USEPA with the authority promulgated under the Occupational Safety and Health Act (OSHA), 29 USC §§ 669 et seq. Emissions of asbestos fibers to ambient air are regulated under Section 112 of the CAA. Asbestos management at Air Force installations is established in AFI 32-1052, *Facility Asbestos Management*. AFI 32-1052 incorporates by reference applicable requirements of 29 CFR 669 et seq., 29 CFR 1910.1025, 29 CFR 1926.58, 40 CFR 61.140, Section 112 of the CAA, and other applicable AFIs and DoDDs. AFI 32-1052 requires installations to develop an asbestos management plan for the purposes of maintaining a permanent record of the current status and condition of all ACM in the installation facility inventory and documenting all asbestos management efforts. In addition, the instruction requires installations to develop an asbestos operating plan that details how the installation will conduct asbestos-related projects (USAF, 1994).

ACM at the housing areas on Beale AFB are addressed in accordance with the Asbestos Management and Operating Plan (AMOP), Beale AFB prepared in March 1998. This plan provides management of ACM in the housing units and facility buildings at other locations on Beale AFB. The plan outlines responsibilities, provides required training for addressing asbestos issues, and presents other management requirements for other addressing identified ACM.

Ongoing ACM surveys are conducted at housing units before self-help projects are initiated by occupants or when suspect material is discovered. These surveys have indicated the presence of ACM, such as floor tiles and associated mastic, transite material, and other building materials containing asbestos. An investigation conducted in 1995 confirmed the presence of ACM in housing units on Beale AFB.

Based on the age of the units, no ACM is expected to be present at the Mountain View and Brookview housing units. Known or suspect ACM are present at Lakeview, Beale West, Gold Country, Birdland Townhouses and Beale East housing areas because these units were constructed in the 1970s or earlier.

3.6.4 Lead Based Paint

The Residential Lead Based Paint Hazard Reduction Act of 1992, Subtitle B, Section 408 (commonly called Title X), was passed by Congress on October 28, 1992 and regulates the use and disposal of lead based paint at federal facilities. Federal agencies are required to comply with all applicable federal, state, interstate, and local laws relating to lead based paint activities and hazards.

Management of LBP at AF installations is established in the Air Force policy and guidance on lead based paint in facilities. The policy incorporates by reference the requirements of 29 CFR 1910.1025, 29 CFR 1926, 40 CFR 50.12, 40 CFR 240 through 280, the CAA, Public Law 102-550, and other applicable federal regulations. This policy requires each installation to develop and implement a facility management plan for identifying, evaluating, managing, and abating lead based paint hazards.

LBP is managed in accordance with the Beale AFB Lead Based Paint Management Plan prepared in 1995. The objective of the plan is to minimize or eliminate exposure of the Base population to the possible detrimental effects of lead, especially within military family housing.

The testing and assessment of LBP on Beale AFB is conducted on an as-needed basis. An investigation conducted in 1995 confirmed the presence of LBP in housing units on Beale AFB. With the exception of the Mountain View and Brookview units, LBP is presumed present in the housing units and facilities to be conveyed based on their year of construction (prior to 1977) and similar painting histories. The manufacture of LBP was prohibited in 1977; therefore, LBP is not expected to be present in the Mountain View (constructed in 1998) and Brookview (constructed in 2001/2002) units.

3.6.5 Environmental Restoration Program

The Environmental Restoration Program (ERP) is a subcomponent of the Defense Environmental Restoration Program (DERP) that became law under SARA of 1986. The ERP requires each DoD installation to identify, investigate, and remediate environmental contamination that occurred prior to 1984. The ERP is the DoD program for implementing the requirements of CERCLA. The ERP follows the CERCLA process for potential hazardous sites and was developed to:

- Identify and evaluate hazardous material disposal sites;
- Control the migration of hazardous contaminants;
- Control hazards to health or welfare that may have resulted from past disposal operations; and
- Clean up on a "worst first" basis, contamination from past hazardous waste sites at active military installations, government owned/Project Owner operated facilities, and formerly-used DoD sites[3].

Historical industrial activities conducted at Beale AFB have resulted in the contamination of several areas. As part of its proactive commitment to restoring and protecting the environment, Beale AFB has initiated an environmental cleanup program under its ERP that is designed to identify, investigate, and remediate identified contaminated sites.

Since the early 1980s, Beale AFB has been addressing known contaminated sites through the ERP. In addition, Beale AFB has been working closely with various state regulatory agencies in order to meet California standards and requirements.

[3] The Department of Defense (DoD) is responsible for environmental restoration of properties that were formerly owned by, leased to or otherwise possessed by the United States and under the jurisdiction of the Secretary of Defense. Such properties are known as Formerly Used Defense Sites (FUDS). The Army is the executive agent for the program and the U.S. Army Corps of Engineers is the organization that manages and directs the program's administration. Over 9,000 properties have been identified for potential inclusion in the FUDS program. Information about the origin and extent of contamination, land transfer issues, past and present property ownership, and program policies must be evaluated before DoD considers a property eligible for Defense Environment Restoration Account (DERA) funding under the FUDS program. Environmental cleanup procedures at FUDS are similar to those at active DoD installations.

The Base has identified areas with possible contamination based on the use, waste management, and reported spills in the area. Ongoing investigation and subsequent remedial activities over the years have resulted in the current 38 designated sites requiring investigations and potential remedial actions. In addition, 59 Area of Concern (AOC) sites have also been identified requiring further investigations. AOC sites are defined as property that is being, or has been, investigated for possible contamination.

The Management Action Plan (MAP) for Beale AFB, describing the status of the ERP, was last revised in December 2000. The MAP presents the comprehensive strategy for implementing response actions necessary to protect human health and the environment. The MAP provides an overview of restoration activities and strategies under both the ERP and the environmental compliance program for Beale AFB.

As part of its ERP, the Air Force is managing ten sites and AOCs in the southeastern portion of the Base and within one mile of the housing area. Locations of these sites are shown on Figure 4.

- Five of the sites are near the Base Clinic north of Warren Shingle Boulevard. Four of the sites north of Warren Shingle Boulevard (ERP AOC 21 and SWMU 16, 17C and 17D) have been closed with no further action required. Fuel constituents tested at RCRA AOC 13F were found to be below Tri-Regional Guidelines and the site has been closed.

- Of the remaining five AOCs, the Best Slough disposal area (ERP AOC 10) used in the 1970s has been closed with no further action required. The four remaining AOCs located near the housing area are described in Table 12. One of these sites (RCRA AOC 2A) remains open with ongoing remediation.

Table 12. Areas of Concern Near Housing Areas at Beale AFB

Site	Description	Distance from Housing	Status
ERP AOC 7	Ball Field Paint Disposal Area (disposal of paints and solvents in the 1970s)	2500 ft	Site closed with no further action as an area of no suspected contamination.
RCRA AOC 2A	Vassar Lake AAFES Fueling Station (Building 3304)	450 ft	Remediation is in progress for soil and groundwater contamination; plume of contamination is being defined.
ERP AOC 54	Located west of Beale West housing, the Dry Creek disposal area used in the 1960s was the location for discovery of buried drums.	380 ft	Site has been closed with no further action as an area of no suspected contamination.
ERP AOC 22	Base Housing Disposal Area; disposal of concrete rubble and rusted 55-gallon drum lid; asbestos contamination discovered (1960s)	250 ft	Site transferred to Base compliance program; asbestos material abated in 1999; site closed under TSCA guidelines.

AAFES Army & Air Force Exchange Service
AFB Air Force Base
AOC Area of Concern
ERP Environmental Restoration Program
ft feet
MFH Military Family Housing
RCRA Resource Conservation and Recovery Act
TSCA Toxic Substances Control Act

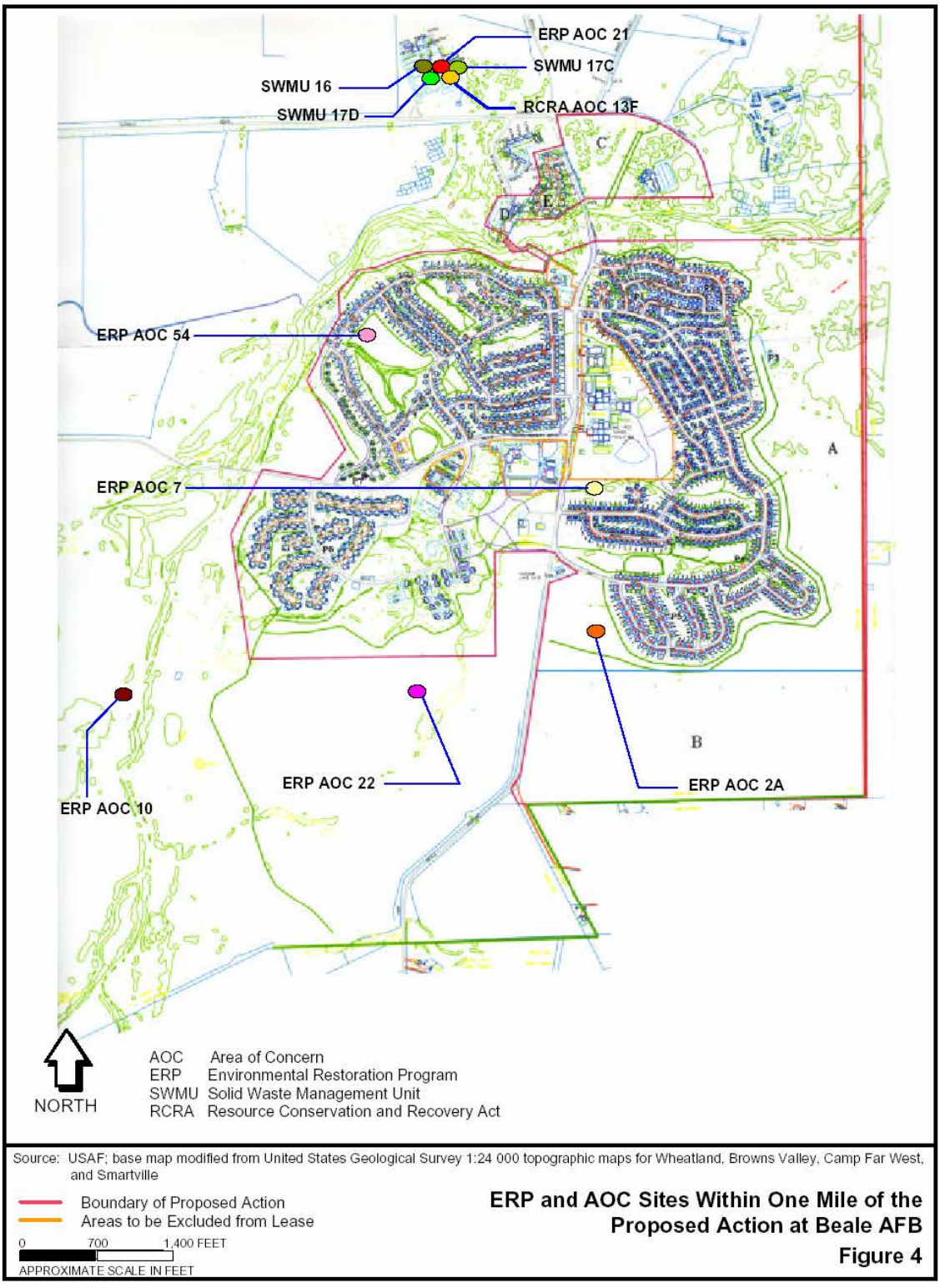

Figure 4. ERP and AOC Sites Within One Mile of the Proposed Action

3.6.6 Pesticides

Pesticides, herbicides, and other similar chemicals have been used for the purpose of controlling pests (unwanted birds from the flightline, insects and rodents) and maintaining landscaped areas within the housing area on Beale AFB. Pest control responsibilities on the Base are handled by the Entomology Shop (9th CES/CEOHE). Pest management and control procedures are conducted in accordance with the Beale AFB Pest Control Management Plan, which is based on AFI 32-1032, *Pest Management Program*. In accordance with the Pest Control Management Plan, minimal application of herbicides has been performed at the housing areas. When these types of chemicals have been used, their application has been conducted in accordance with manufacturer's specifications, and has been applied by personnel properly trained in their use as required by the plan. Historical use of chlordane in the housing areas has not been fully evaluated. Past bulk storage of pesticides, herbicides, and other similar chemicals is not expected within the housing areas.

3.6.7 Radon

The USEPA has categorized Yuba County as Zone 2 for radon. Zone 2 is for areas with indoor average radon levels of greater than or equal to 2 picoCuries per liter (pCi/l), but less than or equal to 4 pCi/l. The current USEPA recommended action level (RAL) for radon is 4 pCi/l. Geotechnical studies conducted by the U.S. Army Corps of Engineers indicate that most of the housing areas on Beale AFB are situated on volcanic rock, which does not exhibit radon offgassing.

3.6.8 Ordnance

Camp Beale was actively used by the Army as a tank, bombardier and gunnery range from 1942 through 1947. Training activities involved both explosive and chemical ordnance. Historically, these training activities included firing ranges and target areas that were located in the southeastern portion of Beale AFB. Few records have been located regarding the specific location of targets within the ranges. In 1948, Camp Beale was transferred from the War Assets Administration to the Air Force and became known as Beale Bombing and Gunnery Range. While there were reportedly several clearance actions at various areas throughout Beale Bombing and Gunnery Range, the majority of the clearances were visual searches above ground rather than sub-surface investigations. The subsurface clearance investigations focused on the target areas. The areas outside of the targets were reportedly only searched visually by personnel traveling in aircraft or jeeps.

Between 1959 and 1962, approximately 59,450 acres of land were disposed. In 1964 and 1965, additional property was disposed. At the conclusion of the final transaction, Camp Beale had been reduced from 87,076 acres to its current size (Beale AFB) of 23,078 acres. The property that was sold between 1959 and 1964 contained the majority of the target and range areas. Since the disposal of the property by the Government, the property has been used primarily for agricultural purposes and the Spenceville Wildlife and Recreation Area. Portions of the property have been developed into residential areas.

Magnetometer sweeps of the land that now comprises the housing areas on Beale AFB were conducted before construction of housing in 1958. Unexploded ordnance (UXO) identified during the magnetometer sweeps were removed and disposed of properly. Discoveries of UXO have been rare in the housing area.

The U.S. Army Corps of Engineers contracted with TechLaw, Inc. to conduct a Final Archives Search Report (ASR) for the Camp Beale Ordnance and Explosive Cleanup Project (Techlaw, 2001). This task was accomplished in part by a review of previously compiled archives search reports, as well as an analysis of documents collected from various repositories. The emphasis of this report is on the boundaries of the former Camp Beale, and not inclusive of the boundaries of Beale AFB.

As part of the United States Air Force Munitions Response Program (MRP), Air Combat Command conducted an inventory of former ranges at its bases around the country, to include Beale AFB. This inventory has identified a number of former ranges at Beale AFB. An MRP investigation of Beale AFB is

proposed for FY 2005. The emphasis of this investigation will be the boundaries of Beale AFB, and not acreage located outside of the Beale boundaries (i.e., Camp Beale).

3.6.9 Polychlorinated Biphenyls

In order for an installation to be classified as polychlorinated biphenyl (PCB)-free by the Air Force, the Base must certify that all electrical equipment, with the exception of mission-critical equipment, containing equal to or greater than 50 parts per million (ppm) of PCB has been removed. The Base has no transformers in service with PCB concentrations equal to or greater than 50 ppm. However, mission critical equipment may contain dielectric fluid having PCB concentrations equal to or greater than 50 ppm. None of the mission critical equipment are located in the housing areas.

Pole-mounted electrical transformers are present within portions of the housing area. Obvious stains and/or leaks were not observed around these transformers. Fluorescent lights are also present in some of the housing units. Ballasts normally associated with fluorescent lights may contain PCB.

The Vassar Lake Substation includes pad-mounted power transmission lines and two transformers. The substation area is covered with gravel, except where the equipment pads are located. The transformers are not equipped with secondary containment. A drainage ditch is located immediately north of the fenced substation area. The transformers used to contain PCB-type dielectric fluid, and these transformers have since been changed out. PCB spills from these transformers have occurred in the past and PCB is likely to be found in the surrounding soil. These PCB spills have not yet been investigated.

3.7 BIOLOGICAL RESOURCES

Habitat types found on Beale AFB are grassland, oak woodland, riparian and wetland (permanent and seasonal). Vegetation within the existing housing areas is landscaped. Common landscape trees include fruitless mulberry, Fremont's cottonwood, Lombardy poplar, and weeping willow.

The southeastern portion of the Base at the housing area is primarily developed. Riparian wetlands are present along the Dry Creek corridor that extends along the western and northern side of the housing area. The area of the Proposed Action does not include any land that contains riparian vegetation.

3.7.1 Biological Communities

Annual Grassland. Most grassland species at Beale AFB are naturalized species, although a few species of perennial bunch grasses are found in varying densities in pastures and roadsides throughout the Base. Non native annual grass species include ripgut brome, Italian ryegrass, soft chess, medusahead, annual fescue, and foxtail barley. Intermixed with these dominant grasses is a diverse assemblage of native and introduced forb species.

Annual grasslands provide nesting and breeding habitat for a variety of grassland birds, as well as foraging habitat for many bird species that breed in other habitats. The proximity of riparian habitats, oak woodlands, and wetlands thus enhances the value of annual grasslands. Annual grasslands at Beale AFB provide foraging habitat for several bird species that are present in the region only during winter. Open annual grassland habitat is particularly important for wintering raptors such as the rough-legged hawk, which has been observed on the Base. Bird species observed in the annual grassland during field surveys include the western kingbird, western meadowlark, lark sparrow, savannah sparrow, horned lark, Western burrowing owl and Brewer's blackbird. Wild turkeys have also been reported using the annual grassland habitat at Beale AFB. Gray fox, striped skunk, raccoon, and Virginia opossum are also likely to be found in the grasslands. Annual grasslands also provide habitat for several species of reptiles, including the gopher snake, western yellow-bellied racer, western rattlesnake, common king snake, and southern alligator lizard. The western fence lizard and western skink also are present at Beale AFB.

Annual grassland is the predominant vegetation on the undeveloped area in Parcel A that would be leased as part of the Proposed Action. Parcel B, which would be leased for Alternatives 1 or 2, has been used for grazing in the past.

Oak Woodland. Oak woodlands are typically dominated by an overstory of one or more species of oak with a total cover of at least 50 percent and a herbaceous understory that is composed of species commonly occurring in annual grassland habitat. Several species of shrubs, such as poison oak, manzanita, and ceanothus may be present in the understory. In the eastern portion of the Base, grey pine is often found growing in the blue oak woodland.

Oak woodlands provide important nesting, roosting, and perching habitat for a variety of bird species. They also provide shade in the summer and cover in the winter for many bird and mammal species. Acorns produced in the oak woodlands are an important food resource for many species of wildlife, including wild turkey, California quail, acorn woodpecker, scrub jay, deer, and California ground squirrels. Oak foliage and bark support insect populations that provide food for insectivorous birds, including bushtit, yellow-rumped warbler, and Hutton's vireo. Oaks also provide nest sites for cavity-nesting birds, including the acorn woodpecker, Nuttall's woodpecker, ash-throated flycatcher, western bluebird, tree swallow, plain titmouse, and white-breasted nuthatch.

Oak woodland is located north of the housing area on either side of Dry Creek to the Base boundary, and from the Base Clinic south to the Lake House building. Two isolated stands of oak are found in Parcel A east of the Mountain View housing area.

3.7.2 Special-Status Species

Plants. A total of 19 special-status plant species are known, or have potential, to occur at Beale AFB. Four of these species are formally protected under federal or state law: Hartweg's golden sunburst, Hairy Orcutt grass, Hoover's spurge, and Slender Orcutt grass. None of these four protected plants have been observed on Beale AFB. A fifth species, Greene's tuctoria, is proposed for federal listing, but has not been observed on Beale AFB. Special-status plant species that are known or have potential to occur at Beale AFB are listed in Table B-1 (Appendix B).

Animals. Table B-2 lists special-status fish and wildlife species that are known or have potential to occur at Beale AFB. Thirteen species are formally protected under federal or state law:

- The federally-protected vernal pool fairy shrimp and vernal pool tadpole shrimp cannot be considered to use the project site as there are no wetlands that support shrimp habitat within the project boundaries.
- The federally-protected bald eagle, an irregular migrant to the area, and cannot be considered to use the project site for more than occasional foraging.
- The state-protected white-tailed kite, which is present on the Base year-round, cannot be considered to use the project site for more than occasional foraging.
- The state-protected golden eagle, a year-round visitor to the Base, cannot be considered to use the project site for more than occasional foraging.
- The state-protected American peregrine falcon, an irregular visitor to the Base, cannot be considered to use the project site for more than occasional foraging.
- The federally-protected valley elderberry longhorn beetle cannot be considered to use the project site as there is no riparian habitat within project boundaries.
- The federally-protected giant garter snake cannot be considered to use the project site as there is no habitat within the project boundaries and there have been no species identified on the Base or in adjacent off-base property.
- The state-protected black rail has not been observed on or near the project site.
- The state-protected Swainson's hawk and greater sandhill crane have not been observed on or near the project site.

- The federally-protected Central Valley steelhead and Chinook salmon cannot be considered to use the project site as there is not fish habitat within the project boundaries.

Many bird species present on the project site, including those identified above, are subject to regulation under the Migratory Bird Treaty Act (USAF, 2002b).

Grasslands provide suitable habitat for two species of special concern: Western burrowing owl has been observed on the Base, but not within the area of the Proposed Action. Marysville kangaroo rat has not previously been observed and is highly unlikely on the Base.

The northwestern pond turtle, a species of special concern, has been observed at Dry Creek north of the existing housing area.

3.7.3 Wetlands

Executive Order 11990 (Protection of Wetlands) defines wetlands to generally include swamps, bogs and similar areas such as sloughs, mud flats and natural ponds that are inundated by surface water or groundwater with a frequency sufficient to support prevalence of vegetative or aquatic life that requires saturated or seasonally saturated soil conditions for growth and reproduction. Permanent water such as streams, reservoirs and deep lakes are not considered to be wetlands.

A wetland delineation was prepared for Beale AFB and verified by the U.S. Army Corps of Engineers. Wetland types at Beale AFB of particular importance to wildlife include vernal pools, riparian forests, and freshwater marsh (USAF, 1998d). Approximately 800 acres of wetlands are present on Beale AFB (USAF, 2001d).

Vernal pools are extensive in the western, central, and southern portions of the Base. Vernal pools are small, shallow, seasonal bodies of water formed by an impervious claypan, hardpan, or bedrock bottom. These pools provide unique habitat for plants that germinate as aquatic or semiaquatic plants but must survive a terrestrial life and a drought environment as the pool dries. Isolated vernal pools are found southwest of the developed housing area including at Broskey Lake. The privatization area does not contain vernal pool habitat.

Riparian areas at Beale AFB are primarily associated with lakes and perennial streams. Riparian systems occur in transition zones between aquatic and upland ecosystems and, in their undisturbed condition, are characterized by dominant vegetation that is tolerant of, and adapted to, periodic flooding or soil saturation. Prime riparian habitat on the Base is found along Dry Creek and Best Slough located from north to southwest of the housing area. A riparian preservation area encompassing Dry Creek and Best Slough has been designated as a conservation zone.

Freshwater marshes on Beale AFB are considered permanent wetlands. Permanent wetlands on Beale AFB include cattail marsh, tule marsh and mixed marsh. These are found primarily in association with ponds and lakes or other permanent water.

With the exception of the segment of Dry Creek between the Lake House and the housing area, there are no wetlands found within the area of the Proposed Action.

3.7.4 Floodplains

As defined in Executive Order 11988 (Floodplain Management), floodplains are lowland and relatively flat areas adjoining inland and coastal water that would be inundated by a 100-year flood. Federal agencies are required to reduce the risk of flood loss to minimize the impact of floods on human safety, health and welfare, and to restore and preserve the natural and beneficial values served by floodplains.

Creeks at Beale AFB are surrounded by wide floodplain areas created by the occasional heavy rainfall that occurs in the region. Floodplains are lowland and relatively flat areas adjoining inland and coastal waters including at a minimum, that area subject to a one percent or greater chance of flooding in any

given year (i.e., 100-year floodplain). The Dry Creek riparian area that extends west and southwest of the housing area is within the 100-year floodplain. The 500-year floodplain on Beale AFB is within and south of the main base as well as in dispersed locations at the flightline. The area of the Proposed Action does not include any area within the 100-year floodplain.

3.8 CULTURAL RESOURCES

Cultural resources include prehistoric and historic archaeological sites, buildings, structures, districts, artifacts, objects, or any other physical evidence of human activity considered important to a culture, subculture, or community for scientific, traditional, or religious purposes. Historic properties, under 36 CFR 800, are defined as any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion in the National Register of Historic Places (NRHP). Properties eligible for inclusion in the National Register include both listed and eligible properties that meet NRHP listing criteria as found in 36 CFR Part 60.

The Air Force prepared a Cultural Resources Management Plan (CRMP) for Beale AFB in 1998. The CRMP (USAF, 1998d) provides an inventory and evaluation of cultural resources as well as a management program for such resources.

3.8.1 Historic Architectural Resources

None of the housing units that would be conveyed as part of the housing privatization action are considered historic properties or eligible for the NRHP. Pursuant to 36 CFR 800.4(d)(1), the SHPO has concurred with a determination of No Historic Properties Affected (SHPO, 2004). None of the other buildings or facilities to be conveyed (Building 2322, Building 5800 or Vassar Lake Substation) are considered historic or eligible for the NRHP.

3.8.2 Archaeological Resources

There are no archaeological sites on Beale AFB that are currently listed on the NRHP. Archaeological resources within the proposed housing privatization conveyance boundaries include three archaeological sites:

- The Prehistoric Era site RB-1, composed of bedrock mortars, is probably ineligible for listing on the NRHP. Subsurface testing of this site has not been conducted (USAF, 1998d).
- The prehistoric site, CA-YUB-1161, previously determined to be eligible for the NRHP, no longer qualifies for listing because the important information has been recovered from this sparse lithic scatter (SHPO, 2004).
- The Pre-Military Era site CA-YUB-1170H (BAFB-12H) is composed of the remains of Placer Mining activity (tailings and water control). This site was determined to be ineligible for listing on the NRHP (USAF, 1998d).

For management purposes, the CRMP identified Archaeologically Free Zones on Beale AFB. These areas have not been surveyed and are characterized by heavy disturbances and land modifications related to prior developments in the flightline, main base and family housing. Previous studies identified mapped variants of several historic roads that crisscross the housing area. The housing area is situated within the setting determined to be “highly sensitive” for prehistoric archaeological sites, and contains a few relatively undeveloped intermittent drainage corridors where prehistoric sites may be present. The developed housing area is recognized for management purposes as an Archaeologically Free Zone with the exception of the interior undeveloped drainages that will be surveyed as a management priority (USAF, 1998d). While a large part of the developed housing area is in an Archaeologically Free Zone, the area of the Proposed Action also includes unimproved open space/grazing areas in the vicinity of the developed housing area. The Archaeologically Free Zones exclude the Club Beale, Lakeview and Lake House areas, the northwestern portions of the Beale West and Gold Country housing areas, and Parcel B.

The CRMP includes a Standard Operating Procedure for proposed undertakings in the developed portions of Beale AFB. Proposed undertakings in Archaeologically Free Zones are exempt from NHPA Section 106 review and consultation as long as the following provisions are met:

- If archaeological remains are inadvertently discovered in the Archaeologically Free Zone, then the Standard Operating Procedure for this discovery must be followed; and,
- For new construction work involving ground disturbance that will be performed through service contracts, Archaeological Resources Protection Act of 1979 (ARPA)/Native American Graves Protection and Repatriation Act of 1990 (NAGPRA) notification, inadvertent discovery procedures and other conditions on performance relevant to protection of cultural resources will be included in service contracts.

The cultural sensitivity of Beale AFB was determined based on past investigations, the locations of recorded and unrecorded sites, and the potential for archaeological deposits. The highest density of prehistoric archaeological sites was determined to be in the hilly eastern third of the installation.

Parcel B, the undeveloped land that could be leased as part of Alternatives 1 or 2, is not located in an Archaeologically Free Zone, and is considered to have a high cultural sensitivity. This is due to the presence of the mine tailings archaeological site CA-YUB-1170H in Parcel B. The CRMP has identified archaeological site protection measures and specific management priorities for these properties.

The CRMP included an evaluation of potential threats and risks to cultural resources. The housing area is highly disturbed, however it is considered to be an archaeologically sensitive area. Existing and potential future land uses in the family housing area were determined to represent a high risk to archaeological resources at this location.

3.8.3 Traditional Cultural Resources

Cultural resources also include traditional cultural resources and properties of significance to contemporary Native Americans. The NRHP defines a traditional cultural property as one that is eligible for inclusion in the NRHP because of its association with cultural practices of beliefs of a living community that (a) are rooted in that community's history, and (b) are important in maintaining the continuing cultural identify of the community. Consultation with knowledgeable interested Native Americans who have heritage ties to the Beale AFB area is required to identify such places. The Air Force has identified 15 Native American groups that may have interest in the Beale AFB area. The Air Force conducted consultations with Maidu tribal descendants in 1994 while preparing the CRMP. This group expressed concern over protection of the unique bedrock mortar site on Best Slough, and regarding protection of burials should they be found on the installation. The Best Slough traditional cultural resource is approximately one mile southwest of the housing area. In summary, no traditional cultural remains occur within the areas proposed for housing privatization.

3.9 GEOLOGICAL RESOURCES

3.9.1 Topography

The topography of Beale AFB is characterized by flat to gently rolling alluvial plains in the west and south, uplands in the north and central portions, and increasing steepness approaching the Sierra Nevada foothills to the east where elevations reach over 500 feet above ground level (USAF, 2001d).

The eastern portion of the Base containing the family housing area contains low, rolling hills that gradually merge with the foothills of the Sierra Nevada. The elevation of Beale AFB ranges from 80 to 90 feet above mean sea level along the western and southern boundary, toward the Central Valley, to more than 500 feet in the northeastern part of the Base towards the Sierra Nevada foothills (USAF, 2005).

3.9.2 Soils

The soils of Beale AFB consist of shallow loams derived from metavolcanic rock in the east, gravelly and cobbly alluvium in the northeast, clay rich alluvial soils in the central (flight line and main base), and clayey loams in the western portions of the Base. Soils are generally acidic, and water erosion potential is slight to moderate. Shrink-swell potential is higher in the central alluvial soils and western loams because of the higher clay content (USAF, 2001d).

Soils in the housing area on the southeastern section of Beale AFB are primarily of the Auburn-Sobrante Loam or Auburn Loam (USAF, 2005). Auburn-Sobrante loams are found on the foothills of the eastern portion of the Base near the Clinic and in the family housing area. Auburn soil forms on ridge tops and upper side slopes, whereas Sobrante soil is on lower side slopes and toe slopes. Auburn and Sobrante soils are shallow to moderately deep and well drained, derived from metavolcanic rock. Depth to bedrock ranges from 10 to 25 inches. These soils are moderately permeable, and runoff is generally slow, with minimal hazard of water erosion. Limitations to development include slow permeability and shallow soil depth. Sobrante soils are moderately permeable and the hazard of water erosion is slight. Limitations to development include shallow soil depth and slope (USAF, 2005).

3.10 INFRASTRUCTURE AND UTILITIES

3.10.1 Water Supply

Beale AFB obtains water from nine government wells located on the Base approximately one mile west of the Main Gate. These wells draw from an aquifer that is recharged by the Feather and Yuba Rivers. Wells are 200 to 300 feet deep with up to five wells operating at any time. The sustained well source capacity for the nine wells is approximately 11 million gallons per day (mgd), with a maximum surge capacity of approximately 12 mgd. The pumping capacity of the nine wells varies from 200 to 1,425 gallons per minute (gpm), with total capacity of all nine wells at approximately 8.48 gpm. Water is treated (chlorine, fluoride and polyphosphate injection) at the Central Water Supply Treatment Plant at Building 701 adjacent to Well No. 1. Water is then pumped into an underground 3 million gallon main reservoir and four smaller ground-level storage tanks. Two of the water storage tanks are located at the eastern boundary of the Base near the Beale East housing area. Three booster/pump stations move water through the distribution system on the Base. The water supply system provides water to all users and fire suppression systems (USAF, 1998c).

The average annual demand for potable water for all Base uses is approximately 2.3 mgd. Peak daily demand during the warmest month (July) averages 4.2 mgd, which represents approximately 38 percent of well source capacity. The water supply system has a residual capacity of 62 percent which can support growth on the Base (USAF, 1998c).

Beale AFB meets water quality standards with the exception of coliform bacteria, manganese, iron and turbidity. The Base has recently constructed a new drinking water treatment plant to include additional treatment processes and a new transmission line to transport water directly from that facility to the reservoir. The Base is also in the process of replacing and upgrading associated water system lines. Other than the new treatment plant and ongoing replacement of lines, no additional improvements to the water supply and distribution system are required.

3.10.2 Wastewater Treatment

The sanitary sewer system on Beale AFB consists of a gravity and force main collection system and a wastewater treatment plant (WWTP). The collection system consists of approximately 47 miles of sewer main with lines ranging from 6 to 24 inches in diameter. Sewer lines are concrete or asbestos cement, vitrified clay, polyvinyl chloride (PVC), high-density polyethylene, and cast or ductile iron piping. The majority of the sanitary sewer system is gravity fed because of the higher elevation of the eastern region of the Base.

The WWTP (Building 124) has a rated capacity of 5 mgd. Treated effluent from the WWTP is either pumped to the golf course for use as irrigation water or discharged to Hutchinson Creek, or pumped to Pond 4 for land based discharge. Discharges from the WWTP are regulated by a NPDES permit issued in April 2004 and Waste Discharge Requirements (WDR) for land basing issued in March 2004 by the California Regional Water Quality Control Board (CRWQCB), Central Valley Region.

During the rainy season (October through April), storm water runoff inflow and rainfall-induced infiltration enters the sewer system in the housing area, increasing the amount of sewage flow. The structural condition of the wastewater system in the housing area is considered poor because infiltration and inflow enters the system through cracked pipes, faulty pipe joints and deteriorated manholes. The level of influent to the WWTP has never exceeded the 5 mgd rated capacity even during periods of wet weather because plant operators can regulate flow through the inlet gate during rain events. However, system backups and overflows in the housing area have resulted from this practice (USAF, 1998c).

The Base has a 100 million gallon on-base treated wastewater overflow pond near the Pheasant Farm and a land-based discharge system south of the WWTP at the golf course.

3.10.3 Storm Water Management

The storm water drainage system at Beale AFB serves to provide adequate drainage to sustain normal surface runoff and prevent flooding. The principal surface drainage systems for the Base are Dry, Hutchinson and Reeds Creeks. The western reaches of these creeks are surrounded by a wide floodplain area created by heavy rainfall, impervious soil conditions, and lack of topographic relief. Dry Creek flows year round, while Hutchinson and Reeds Creeks are intermittent.

The storm water drainage system consists of open ditches, storm sewers, culverts and pipes. Most of the approximately 49 miles of curbs and gutters are located in the Flightline and Family Housing Areas. Storm water flow is directed either to the sanitary sewer, or through drainage ditches and discharged into the three creeks. Beale AFB storm water discharges are regulated by a California Statewide General Industrial Activities Stormwater Discharge Permit.

The existing storm drainage system is inadequate because it cannot handle the runoff generated by heavy rainfall. Occasional storm water intrusion is experienced in the housing area, particularly at dwelling units situated in low spots. Deterioration of the storm drainage system has been identified as a factor contributing to sanitary sewer system infiltration and inflow problems.

The Base has recently constructed a new storm drainage system by adding runoff control measures such as berms, concrete storm water mains, concrete headwalls, culverts, oil/water separators, detention/retention basins, and the elimination of cross-connections to the sanitary sewer system. These improvements will improve the storm drainage system as well as prevent contamination of surface waters. The Base is also in the process of constructing an underground storm drainage system.

3.10.4 Natural Gas

A non-interruptible supply of natural gas is provided to Beale AFB by Pacific Gas and Electric (PG&E), which is contracted to supply the Base with 32 million cubic feet (mcf) per hour (768 mcf per day). Gas enters Beale AFB through a single 4-inch line near the Wheatland Gate northwest of the railroad track. At peak demand, the Base consumes approximately 48 percent of the available supply capacity, indicating sufficient capacity to support growth (USAF, 1998c).

The natural gas distribution system on Beale AFB services the main base and flightline areas. There are no natural gas mains or lines in or near the housing areas. All dwelling units are heated electrically (USAF, 1998c).

3.10.5 Electricity

The primary source of electric power at Beale AFB is PG&E that provides electricity via three PG&E-owned 60 kilovolt-ampere (kVA) transmission lines. These lines enter the installation from the northeast

at the Grass Valley Substation and exit on the south side of the installation near the Vassar Lake Substation.

Power is routed through five substations that step incoming voltage down to the 7.2/12.0 kilovolt (kV) on-base distribution voltage. The total normal sustained design capacity of the five substations is 43.875 megawatts (MW) per day. Overhead distribution lines carry electricity to most parts of the Base, and pole and pad-mounted transformers step the distribution voltage down to various levels for use at facilities on base. Backup and emergency power is provided by a system of generators.

Electrical system design capacity is limited only by the on-base distribution system. At peak demand, the Base is at approximately 35 percent of the design capacity. Although the system is capable of supporting new missions and population growth, substation capacity may require upgrades in the future depending on mission requirements. In addition to ongoing maintenance and repair projects, the following system upgrades are ongoing:

- Overhead power distribution lines in the housing areas are up to 40 years old and overhead lines along Warren Shingle Boulevard are telephone lines that bring considerable weight to bear on the power poles that support them. The Base is relocating these lines underground. Deteriorated power poles are being replaced.
- Pole-mounted transformers are in the process of being replaced with pad-mounted transformers.
- Fiber optic cabling will be installed to replace wire cabling.

3.10.6 Solid Waste Management

Municipal solid waste (MSW) management at Beale AFB is managed in accordance to the guidelines specified in AFI 32-7042, *Solid and Hazardous Waste Compliance*. The instruction incorporates by reference the requirements of Subtitle D, 40 CFR Parts 240 through 244, 257, and 258, and other applicable federal regulations, AFIs and Department of Defense Directives (DoDD). In general, AFI 32-7042 establishes the requirement for installations to have a solid waste management program to incorporate the following: a solid waste management plan; procedures for handling, storage, collection, and disposal of solid waste; record-keeping and reporting; and pollution prevention.

Refuse collection and disposal are functions of the 9th Civil Engineer Squadron. On Beale AFB, these functions are contracted to a civilian waste systems Project Owner, Yuba-Sutter Disposal, Inc. Solid waste is transported offsite to its certified off-base landfill. The lifespan of the existing cell of this landfill was estimated to last until the year 2011, with planned expansion of the landfill to accommodate the needs for the next 50 to 90 years (USAF, 2001a).

3.11 TRANSPORTATION

The major highways that provide access to Beale AFB are State Route (SR) 65, SR 70 and SR 20. SR 65 is a north-south roadway extending from Interstate 80 in Roseville to SR 70 approximately seven miles south of Marysville. SR 70 connects Beale AFB to Sacramento to the south and Oroville to the north. SR 20 is an east-west highway extending from I-80 near Truckee to Highway 1 in Fort Bragg. This route traverses north of the installation, passing through Nevada City, Grass Valley, Marysville and Yuba City.

The off-base street network is composed of five roads that provide access to the installation: North Beale Road (from SR 70 to the Main Gate); Hammonton-Smartville Road (from North Beale Road to SR 20); Smartville Road (from the Grass Valley Gate to Hammonton-Smartville Road); South Beale Road (from SR 65 northwest of Wheatland to the Wheatland Gate); and, Spenceville Road (connecting SR 65 in Wheatland to the Vassar Lake Gate). Spenceville Road is the primary travel route of personnel accessing the installation from the Wheatland area.

The road network on Beale AFB consists of arterials, collectors and local streets. The majority of traffic is carried on five arterials: Gavin Mandery Drive; Doolittle Drive; Grass Valley Road/Warren Shingle Road; Camp Beale Highway; and, J Street.

A traffic analysis of Beale AFB conducted in January 1997 indicated that intersections on the Base were operating at a Level of Service (LOS) A or B during peak hours. Based on LOS C as the threshold for acceptable levels of service, excess intersection capacity is available to support future growth. The analysis indicated that an additional 1,500 military personnel could be accommodated on the Base without major roadway improvements (USAF, 1998c).

3.12 PUBLIC SERVICES

3.12.1 Police

Off-Base. Police protection for the area surrounding Beale AFB is provided by the Yuba County Sheriff, Wheatland Police Department and Marysville Police Department.

On-Base. The 9th Support Group (9th Security Forces Squadron) has responsibility for the control and safeguard of Base property. Routine patrolling of housing areas is accomplished on a 24-hour basis by the Base security police.

3.12.2 Fire Protection

Off-Base. The Wheatland, Yuba City and Marysville Fire Departments provide fire protection services to the areas surrounding Beale AFB. Mutual aid agreements exist between area fire departments and the Beale AFB Fire Department.

On-Base. The Beale AFB Fire Department provides service to properties within the boundaries of the Base. A fire station is located in the housing area to ensure adequate response times.

3.12.3 Medical Services

Off-Base. Emergency medical services are available in the Marysville and Yuba City area through local fire departments, area Clinics and various medical care providers.

On-Base. On Beale AFB, medical clinic services are provided by the 9th Medical Group at the Main Clinic located on Warren Shingle Road. A collocated medical and dental clinic, flight surgeon clinic, medical administration and logistic facilities are located in the housing area north of Warren Shingle Road. The Base Clinic is located north of the housing area on Warren Shingle Road.

3.13 SOCIOECONOMIC RESOURCES

3.13.1 Population

Beale AFB is situated in Yuba County, which comprises approximately 0.18 percent of the total population of California. Of the total 2002 population of 33,871,648 in the State of California, 60,219 people reside in Yuba County (U.S. Census Bureau, 2002).

In 1996, a total of approximately 3,200 active duty personnel were assigned to Beale AFB with approximately 3,400 dependents. At that time, approximately 68 percent (~4,500 persons) were residing on Base (USAF, 1998c). The estimated daily population of Beale AFB is approximately 4,000, including on-base residents and commuters (USAF, 2000b).

3.13.2 Housing

Of the over 12 million housing units in California, 22,636 units are located in Yuba County (U.S. Census Bureau, 2002). Beale AFB currently has 1,553 housing units on the Base.

3.13.3 Employment

Employment in Yuba County is diverse with most occupations in the sales and management/professional sectors. It is estimated that 5.9 percent of the labor force in the county was unemployed in 2000 (U.S. Census Bureau, 2002).

In addition to the approximately 3,200 military personnel stationed at Beale AFB, the Base employed approximately 816 civilian workers in 1996 (USAF, 1998c).

3.13.4 Economy

Beale AFB contributes to the local economy by employing civilian workers. In addition to direct employment, the Air Force contributes additional revenue in construction and service contracts and other purchases from area businesses.

CHAPTER 4

ENVIRONMENTAL CONSEQUENCES

This chapter provides the scientific and analytic basis for comparing the environmental consequences of the Proposed Action, the No Action Alternative, and the two Alternative Actions, as described in Subchapters 2.3 through 2.6. This chapter focuses on impacts considered potentially significant. The general approach followed throughout this chapter is to describe briefly the range of impacts that would occur and then determine if such impacts are considered significant.

The specific criteria for determining the significance of impacts and assumptions for the analyses are presented under each resource area. Significance criteria for most potential impacts were obtained from applicable standard criteria; federal, state, or local agency guidelines and requirements; and/or legislative criteria. Long-term implications of the Proposed Action and the three alternatives are also presented in this chapter.

4.1 MISSION

4.1.1 Proposed Action

The activities associated with implementation of the Proposed Action would not impact the ability of the Air Force to meet the mission of Beale AFB. The privatization of military family housing would enable the Base to continue to support the housing needs of military personnel stationed at this installation. The Proposed Action would have the beneficial effect of providing housing units that meet current housing guidelines and building codes, while enabling the Base to meet its current and projected housing requirements.

4.1.2 No Action Alternative

As a result of the No Action Alternative, the Air Force may be unable to support housing needs of military personnel in future years. Military personnel would continue to reside in units that do not meet current housing guidelines and building codes.

4.1.3 Alternative 1 (Construction)

The impacts of the alternative to replace housing units (i.e., new construction) on Beale AFB would be the same as the Proposed Action.

4.1.4 Alternative 2 (Major Renovation and Construction)

The impacts of the alternative to renovate 60 percent, and replace 40 percent, of housing units on Beale AFB would be the same as the Proposed Action.

4.1.5 Cumulative Impacts

The Proposed Action, Alternative 1 or Alternative 2 would support the current and future mission of Beale AFB and, when combined with other actions identified in Table 9, would not contribute to any cumulative impacts.

4.2 NOISE

In considering the basis for evaluating significance of noise impacts, several items were examined, including: 1) the degree to which noise levels generated by demolition, construction, and renovation activities were greater than the ambient noise levels; 2) the degree to which there would be annoyance, speech and instructional interference, and loss of sleep; and, 3) the proximity of noise-sensitive receptors such as housing units and schools to the noise source.

4.2.1 Proposed Action

The Proposed Action would result in short-term noise impacts associated with the demolition of 209 housing units and renovation of 1,344 housing units. Short-term increases in noise levels would also occur from utility and infrastructure improvements in the housing areas. No changes in land use, traffic volumes, general traffic patterns, or other noise generating activities would occur.

The primary source of noise from demolition and renovation would be from equipment and vehicles involved in demolition, site preparation and finishing work. Demolition and renovation activities would occur between 7:30 a.m. and 4:00 p.m., up to five days per week for the duration of the project. Typical heavy equipment used at construction sites would generate noise levels from 69 to 83 decibels (db) at a distance of 100 feet (Construction Engineering Research Laboratory [CERL], 1978). Sensitive receptors in the vicinity of these short-term activities could include occupied housing units not yet demolished and near the project site, the Child Development Center, the Youth Center, and schools in the vicinity of the housing area.

The primary source of noise at Beale AFB would continue to be from aircraft operations and the noise contours would remain unchanged. Noise from flying activities would tend to mask the noise generated by short-term demolition and renovation activities for the same exposure area. Construction noise likely would not be discernible during periods of aircraft operations. However, there could be periods of time during which construction noise could be discerned and provide minor annoyance.

The Proposed Action would each require construction over an approximate 6.5-year period. After units are constructed, the noise environment would be similar to baseline conditions. Impacts to the noise environment would not be considered significant. Therefore, avoidance measures would not be required for the Proposed Action.

While no net change to exterior noise levels would be expected, a noise level reduction of approximately 18 to 27 dB would be achieved by the incorporating newer housing unit construction materials with improved sound insulation properties (USDOT, 1992). The Air Force would ensure that the following BMP is incorporated into project planning for the Proposed Action:

- Development of a housing vacancy plan that would keep occupied units as far away as possible from planned construction activity.

4.2.2 No Action Alternative

No housing units would be demolished and constructed or renovated as a result of the No Action Alternative, and the units would continue to be used for housing. The existing units were constructed before the Air Force implemented noise level reduction (NLR) measures and not all units have been renovated to include installation of NLR materials to meet the Air Force NLR goal of DNL 45 dBA or less. As a result of the No Action Alternative, it is anticipated that existing housing units would continue to experience interior noise levels that do not meet the Air Force NLR goal.

4.2.3 Alternative 1 (Construction)

The noise impacts of replacement of 1,374 housing units on Beale AFB would be similar to the Proposed Action. After units are constructed, the noise environment would be similar to baseline conditions.

Impacts to the noise environment would not be considered significant. Therefore, avoidance measures would not be required for this alternative action.

4.2.4 Alternative 2 (Major Renovation and Construction)

The noise impacts from renovating 60 percent, and replacing 40 percent, of housing units on Beale AFB would be similar to the Proposed Action. Avoidance measures would not be required for this alternative action.

4.2.5 Cumulative Impacts

Noise impacts from the Proposed Action, Alternative 1 or Alternative 2 would be limited to short-term increases in localized noise. After units are constructed, the noise environment would be similar to baseline conditions. The Proposed Action, when combined with other actions as identified in Table 9, would not contribute any long-term cumulative impacts to the noise environment at Beale AFB.

4.3 LAND USE

The evaluation of land use impacts considered several factors, including: 1) the degree to which the location of facilities would adversely affect existing sensitive land use; 2) the degree to which construction and/or operation of facilities would interfere with the activities or functions of adjacent existing or proposed land uses; and, 3) the degree to which any physical changes in land use would affect surrounding uses and compatibility with land use plans.

4.3.1 Proposed Action

The Proposed Action would result in renovation of housing within the existing and planned development envelope of the housing area. The Proposed Action would not result in any change to current and planned land use within the existing housing areas on Beale AFB.

The Proposed Action would include leasing of undeveloped land in Parcel A east of the existing housing. No housing would be constructed upon this land as a result of the Proposed Action. This area would continue to function as unimproved open space (fire break or buffer land).

The Proposed Action would include lease of land south of the Beale East housing area to the Base boundaries (Parcel B), but would not result in any construction of housing in this area. This area includes 48 acres of unimproved open space, and continuation of existing uses is planned for this location. No grazing has occurred on this land within the past three years. This land would continue to serve as fire break or buffer land. For this reason, no change to the current land use would result from the Proposed Action.

Although the Project Owner's specific plans for these two areas are yet to be determined, loss of open space would not be anticipated because no residential structures would be constructed on the unimproved open space. Grazing would not be allowed in the unimproved open space of the eastern portion of Parcel A or on Parcel B. For these reasons, the Proposed Action would not be expected to affect surrounding land uses.

The Proposed Action would not result in any adverse effects on existing sensitive land use nor would it interfere with the activities or functions of adjacent existing or proposed land uses. New housing would not be located within the clear zone or accident potential zones of the runway. Because the proposed housing would not affect surrounding land use, impacts to land use would not be considered significant.

4.3.2 No Action Alternative

Land use at Beale AFB would not change from the baseline condition as a result of implementation of the No Action Alternative.

4.3.3 Alternative 1 (Construction)

The impacts of Alternative 1 (Construction) would result in the conversion of up to 186 acres of unimproved open space in Parcel B into a developed area for the construction of 200 replacement housing units. Grazing has not occurred on Parcel B in the past three years. Loss of this unimproved open space would occur primarily within the development envelope of the housing area at Beale AFB. Impacts to land use would not be considered significant.

4.3.4 Alternative 2 (Major Renovation and Construction)

The impacts of the alternative to renovate 60 percent, and replace 40 percent, of housing units on Beale AFB would be similar to Alternative 1 (Construction).

4.3.5 Cumulative Impacts

Construction projects planned for Beale AFB would be consistent with existing and planned land use patterns for Beale AFB. No cumulative impacts to land use would be anticipated from the Proposed Action or either alternative when combined with other actions on the Base.

Future development of housing northeast of the Base within the proposed Yuba Highlands Specific Plan area would result in conversion of grazing land to development (Yuba Foothills, 2002). Development off the Base could occur in accordance with the Yuba Highlands Specific Plan. Alternative 1 or 2 would contribute to loss of grazing land in the area, which is considered a cumulative impact. The Air Force would ensure that any loss of grazing land is managed in accordance with the grazing and cropland management plan for Beale AFB. For this reason, cumulative impacts would not be considered significant.

4.4 AIR QUALITY

Impacts to air quality would be considered significant if federal actions resulted in violation of a NAAQS or resulted in annual emissions of a pollutant greater than 250 tons per year (per the definition of a “major stationary source” in an attainment area as defined in 40 CFR 52.21(b)(1)).

4.4.1 Proposed Action

Fugitive dust from ground disturbing activities and combustive emissions from construction equipment would be generated during the demolition of existing military family housing. Fugitive dust would be generated from activities associated with site clearing, grading, cut and fill operations, and from vehicular traffic moving over the disturbed site. These emissions would be greatest during the initial site preparation activities and would vary from day to day depending on the construction phase, level of activity, and prevailing weather conditions. Air pollutant emissions would be short-term and localized, and would not result in any adverse effects on overall ambient air quality.

Demolition would include removal of asbestos and lead based paint (LBP) that would be conducted in accordance with applicable environmental requirements for the safe removal and disposal of asbestos and LBP. With implementation of these procedures, adverse impacts associated with asbestos emissions and LBP dust would not be expected.

Emissions from demolition and renovation activities associated from the Proposed Action are shown in Table 13.

Table 13. Estimated Construction-Related Air Pollutant Emissions from the Proposed Action

Activity	Units	CO	ROC	NO_X	SO_X	PM_{10}
Demolition of 209 units	ton/yr	2.29	0.25	1.47	0.07	0.14
Renovation of 1,344 units	ton/yr	11.70	3.10	6.23	0.28	0.48
Annual Maximum[a]	ton/yr	13.99	3.34	7.70	0.34	0.61
Project Emissions as Percentage of Sacramento Valley Intrastate AQCR Emissions	percent	0.003	0.005	0.009	0.018	0.001

[a] Represents worst-case year when demolition and renovation activities would occur simultaneously

AQCR Air Quality Control Region
CO carbon monoxide
lb/day pound(s) per day
NO_x nitrogen oxides
PM_{10} particulate matter
ROC reactive organic compounds
SO_x sulfur oxides
yr year

Because of their short duration, construction-related emissions would not contribute to long-term air pollution problems. As shown in Table 13, project emissions would represent less than the 10 percent level that would be considered regionally significant by the USEPA if the region were nonattainment for any of the criteria pollutants as stated in 40 CFR 51, Subpart W, Section 852. However, the area is in attainment. Emissions during demolition of existing housing and construction of replacement housing would be less than the significance threshold of 250 tons per year for criteria pollutants. Therefore, the air emission impacts from demolition and renovation associated with the Proposed Action would not be considered significant.

Analysis of the data presented in Table 13 indicates that the overall ambient air quality within the Sacramento Valley Intrastate AQCR would be only slightly affected by the implementation of the Proposed Action at Beale AFB. Increased emissions primarily from short-term construction activities would produce slightly elevated air pollutant concentrations. The effects would be temporary, fall off rapidly with distance from the installation, and would not result in any long-term impacts to air quality.

The Air Force would ensure that the following BMP for air quality is conducted:

- Construction sites would be watered as necessary to minimize fugitive dust emissions.

Watering the disturbed areas of the construction site would reduce total suspended particulate emissions as much as 50 percent. With implementation of the BMP of watering for dust control, the Proposed Action would not result in significant impacts to air quality.

Renovation of the housing units would not result in an increase in occupancy emissions since there would be no new sources of air pollutant emissions (i.e., no new or additional vehicular traffic expected). The Proposed Action would result in a decrease in the number of housing units on Beale AFB.

The USEPA general conformity rule requires federal actions in nonattainment areas to be evaluated for conformity to state and federal air quality objectives. Emissions from the Proposed Action would fall below the 10 percent level that would be considered regionally significant by the USEPA if the region were nonattainment. However, the area of the AQCR where Beale AFB is located is classified as an attainment area. For these reasons, a conformity determination would not be required. The USEPA de minimis threshold level for attainment (or maintenance) areas is 100 tons per year for each of the five criteria pollutants. The Proposed Action would not result in emissions that exceed this threshold amount for any of the criteria pollutants.

4.4.2 No Action Alternative

There would be no change from the baseline air quality conditions as a result of the No Action Alternative. Potential criteria pollutant emissions associated with the No Action Alternative would not exceed significance criteria requirements.

4.4.3 Alternative 1 (Construction)

Alternative 1 (Construction) would result in the demolition of 1,374 housing units and the construction of 1,165 replacement housing units, including 200 new units on 186 acres of undeveloped land in Parcel B south of the existing housing area. This alternative would result in air pollutant emissions from site clearing and grading, and from construction of 200 new housing units on the undeveloped land. Emissions from demolition and renovation activities associated with Alternative 1 are shown in Table 14.

Table 14. Estimated Construction-Related Air Pollutant Emissions from Alternative 1 (Construction)

Activity	Units	CO	ROC	NO_X	SO_X	PM_{10}
Demolition of 1,374 housing units	ton/yr	11.95	1.78	10.37	0.82	1.24
Clearing and Grading on Parcel B	ton/yr	11.24	1.20	11.44	1.11	48.91
Construction of 1,165 replacement housing units	ton/yr	11.44	3.08	3.48	0.29	0.16
Renovation of 179 housing units	ton/yr	4.22	1.42	2.39	0.14	0.10
Annual Maximum[a]	ton/yr	34.63	6.06	25.28	2.22	49.70
Project Emissions as Percentage of Sacramento Valley Intrastate AQCR Emissions	percent	0.008	0.008	0.029	0.117	0.062

[a] Represents worst-case year when demolition, clearing/grading, and new construction activities would occur simultaneously

AQCR Air Quality Control Region
CO carbon monoxide
lb/day pound(s) per day
NO_x nitrogen oxides
PM_{10} particulate matter
ROC reactive organic compounds
SO_x sulfur oxides
yr year

Alternative 1 (Construction) would not result in emissions that exceed the USEPA de minimis threshold level for any of the criteria pollutants. With implementation of the BMP of watering for dust control, Alternative 1 (Construction) would not result in significant impacts to air quality.

4.4.4 Alternative 2 (Major Renovation and Construction)

Alternative 2 (Major Renovation and Construction) would result in the demolition of 743 housing units, renovation of 810 housing units, and the construction of 534 replacement housing units (including 200 new units on 186 acres of undeveloped land in Parcel B). This alternative would result in air pollutant emissions from site clearing and grading, and from construction of 200 new housing units on the undeveloped land. Emissions from demolition and renovation activities associated from Alternative 2 are shown in Table 15.

Table 15. Estimated Construction-Related Air Pollutant Emissions from Alternative 2 (Major Renovation and Construction)

Activity	Units	CO	ROC	NO_X	SO_X	PM_{10}
Demolition of 743 existing housing units	ton/yr	4.09	0.54	3.13	0.24	0.21
Clearing and Grading on Parcel B	ton/yr	11.24	1.20	11.44	1.11	48.91
Construction of 534 replacement housing units	ton/yr	4.92	1.22	1.38	0.12	0.06
Renovation of 810 existing housing units	ton/yr	8.18	2.23	3.95	0.21	0.16
Annual Maximum[a]	ton/yr	20.25	2.96	15.95	1.47	49.18
Project Emissions as Percentage of Sacramento Valley Intrastate AQCR Emissions	percent	0.005	0.005	0.018	0.078	0.061

[a] Represents worst-case year when demolition, clearing/grading, and new construction activities would occur simultaneously

AQCR Air Quality Control Region
CO carbon monoxide
lb/day pound(s) per day
NO_x nitrogen oxides
PM_{10} particulate matter
ROC reactive organic compounds
SO_x sulfur oxides

Alternative 2 (Major Renovation and Construction) would not result in emissions that exceed the USEPA de minimis threshold level for any of the criteria pollutants. With implementation of the BMP of watering for dust control, Alternative 2 (Major Renovation and Construction) would not result in significant impacts to air quality.

4.4.5 Cumulative Impacts

Occupancy of the replacement housing would not contribute cumulative impacts to air quality as these emissions are part of the Base emissions inventory. The air pollutant emissions associated with occupancy of the housing units would not be considered significant. Short-term emissions from demolition and construction would contribute to emissions from local sources during the construction period. The Proposed Action or any of the alternatives may generate temporary air pollutant emissions at the same time as other planned projects on Beale AFB or in surrounding areas (see Table 9). The quantity of demolition and construction emissions that would be generated in the project area would not be expected to substantially contribute to cumulative impacts on air quality. The Proposed Action or any alternative, when combined with other planned projects, would not result in cumulative impacts.

4.5 WATER RESOURCES

Impacts to water resources would be considered significant if any of the following were to occur: substantial flooding or erosion; adverse effects on any important water body (such as stream, lake, or bay); exposure of people to reasonably foreseeable hydrologic hazards such as flooding; or, adverse effects to surface or groundwater quality or quantity.

4.5.1 Proposed Action

Runoff from construction areas could contain contaminants that could degrade the quality of receiving waters. The potential for increased erosion and sedimentation could occur as a result of renovation that requires grading, demolition, and construction of new housing units. These activities could result in soil disturbance and increased erosion and sedimentation that could potentially enter surface waters if not properly managed. To prevent storm water pollution, standard erosion control practices include:

- Minimizing soil disturbance whenever possible (conduct earthwork to minimize the duration of exposure of unprotected soils);

- Establish single point construction entries to minimize erosion during demolition and construction;
- Use of mulch or artificial cover where repeated disturbance is expected;
- Stabilization of soil within 30 days of final disturbance through vegetative or permanent artificial means (e.g., paving or rip-rapping);
- Reestablish grass and other landscaping in disturbed areas immediately after construction is completed;
- Adherence to appropriate State and federal permits and procedures for significant excavation (more than one acre of disturbed soil);
- Adherence to state and federal guidelines for erosion and sedimentation control in any area of disturbed soil;
- Covering of outside storage of any materials or wastes;
- Keep exterior yards, parking areas, roadways and storage areas orderly and free of materials that could add pollutants to storm water;
- Sweep paved areas as warranted; and,
- Keep drainage and outfall pipes unclogged.

Specific BMPs to prevent discharge of soil into surface waters during housing demolition and construction would be followed during demolition and construction activities. The Beale AFB SWPPP identifies practices to be followed for areas that have the potential for sediment and erosion control:

- Retain as much vegetation on site as possible;
- Minimize the time that soil is exposed;
- Redirect runoff to vegetated areas;
- Stabilize the disturbed soils as soon as possible;
- Slow down the runoff flowing across the site;
- Provide drainage paths for the increased runoff (use grassy swales rather than concrete drains);
- Remove sediment from storm water runoff before it leaves the site;
- Preserve natural vegetation when possible;
- Establish buffer zones to reduce the speed of storm water runoff from the site;
- Stabilize stream banks;
- Use mulching, matting and netting or utilize temporary seeding;
- Use permanent seeding and planting (e.g., grasses, bushes or sod); and,
- Use chemical stabilization.

The SWPPP also includes more permanent practices and structures to help prevent sedimentation and erosion:

- Install interceptor dikes and swales, pipe slop drains, or subsurface drains;
- Use of filter fences, straw bale barriers, or brush barriers;

- Construct a gravel or stone filter berm;
- Use storm drain inlet protection (i.e., sandbags, filter fences or straw bales);
- Construction of a sediment trap or establish a temporary sediment basis with outlet protection; and,
- Roughen the ground surface or utilize gradient terraces.

The SWPPP also specifies procedures for spill prevention and response, routine inspection of discharges at sites, and proper training of employees. With implementation of these BMPs, impacts to water quality at Beale AFB would not be considered significant.

The Proposed Action would not result in any substantial change in the amount of impervious areas that could reduce percolation. Storm water runoff would flow into drainage systems that are of sufficient capacity. Adequate drainage would be incorporated into design of the replacement housing. With adherence to BMPs, adverse effects from erosion would be avoided. Significant impacts to surface water would not be expected as a result of the Proposed Action.

The project site is not located in an area that would be impacted by a 100-year flood. Therefore, significant impacts due to flood hazards would not be expected to occur in the project area.

4.5.2 No Action Alternative

The No Action Alternative would not result in any demolition or construction activities at Beale AFB. No change to surface or groundwater resources would occur.

4.5.3 Alternative 1 (Construction)

The impacts of the alternative to replace housing units (i.e., new construction) on Beale AFB would be similar to the Proposed Action. In addition, Alternative 1 (Construction) would result in use of 186 acres of undeveloped land in Parcel B for construction of housing. This would result in an increase in impervious area that could result in a reduction in percolation. The housing area in Parcel B would be designed with adequate stormwater drainage systems in accordance with Base policies and objectives for capture of stormwater runoff. With implementation of BMPs to prevent or minimize impacts, Alternative 1 (Construction) would not result in significant impacts to water resources.

4.5.4 Alternative 2 (Major Renovation and Construction)

The impacts of the alternative to renovate 60 percent, and replace 40 percent, of housing units on Beale AFB would be the same as Alternative 1 (Construction).

4.5.5 Cumulative Impacts

The Proposed Action is one of a number of other planned projects involving construction on Beale AFB and in the surrounding community, as identified in Table 9. With adherence to BMPs for storm water management, the Proposed Action when combined with other actions, would not be expected to cumulatively contribute to impacts on water resources.

4.6 HAZARDOUS MATERIALS AND WASTES

Impacts to hazardous materials and waste management would be considered significant if the federal action resulted in noncompliance with applicable federal or state regulations, or caused waste generation that could not be accommodated by current or planned Beale AFB waste management capacities.

4.6.1 Proposed Action

Hazardous Materials. Products containing hazardous materials would be procured and used during renovation of housing units. Hazardous materials used by the Project Owner would be managed in accordance with regulatory requirements. Project Owners would be required to use and store hazardous materials in accordance with all federal, state, local and Air Force regulations. Specifically, the Project Owner is prohibited from using ozone depleting substances (ODS), mercury, polychlorinated biphenyls, ACM, or materials that contain potentially hazardous concentrations of lead such as LBP. Hazardous materials will not be stored in containers in direct contact with the ground. Containers will be kept closed when not in use. With compliance with hazardous materials management procedures, significant impacts from hazardous materials would not be anticipated.

The Air Force would ensure that the following BMPs for hazardous material or wastes are implemented as a requirement of the Project Owner:

- In the event of a spill of any amount or type of hazardous material or waste (petroleum products included), the Project Owner will take immediate action to contain and clean up the spill.
- The Project Owner's spill clean up personnel will be trained and certified to perform spill clean up.
- The Project Owner will be responsible for the proper characterization and disposal of any waste and clean up materials generated.
- All waste and associated clean up material will be removed from the Base and transported and/or stored in accordance with regulations until final disposal.
- All details concerning the spill will be provided to the Air Force in the form of a written incident report.
- The Project Owner will be responsible for restoring a spill site to the condition prior to the spill or to an improved condition.
- Fueling and lubrication of equipment will be conducted in a manner that affords maximum protection against spills.
- Secondary containment is required around temporary fuel oil or petroleum storage tanks larger than 660 gallons and is recommended for smaller tanks.

Hazardous Wastes. The generation of hazardous waste during demolition and renovation activities would not exceed significance criteria requirements and would continue to be managed in accordance with applicable regulatory requirements. Demolition of the existing housing would result in the generation of hazardous waste, particularly building materials containing asbestos and LBP. These demolition wastes will be managed in accordance with the Beale AFB AMOP and the Beale AFB Lead Based Paint Management Plan.

Hazardous waste generated by residents in the housing areas would continue to be considered as residential waste and would not impact hazardous waste management at Beale AFB. The Project Owner will maintain records of all waste determinations, including appropriate results of analysis performed, substances and sample locations, date and time of collection, and other pertinent data as required by 40 CFR Part 280, Section 74 and 40 CFR, Part 262, Subpart D and any federal, state, or local records requirements. Any hazardous waste generated will be handled in accordance with all federal, state, and local laws and regulations, including RCRA requirements for waste management and Department of Transportation requirements for waste transport. Project Owner-generated hazardous waste will be disposed of in accordance with applicable regulatory requirements. Best management practices described for hazardous materials would be implemented by the Air Force.

Asbestos. The Project Owner would be responsible for all asbestos removal before actual demolition of the building. The Project Owner would survey and develop an asbestos removal plan before renovation of any housing. The plan will be coordinated and approved by the Air Force. All friable asbestos will be

removed by a licensed asbestos abatement contractor using approved abatement methods. Non-friable asbestos can be disposed of as solid waste along with other renovation debris as long as the landfill is permitted to accept non-friable asbestos waste. Non-friable asbestos will be moistened just prior to removal to minimize airborne fibers. All debris mixed with ACM debris must be kept wet and must be sent to an asbestos-approved landfill. Additionally, the specifications for the renovation of new housing units and Air Force regulations prohibit the use of ACM.

Lead Based Paint. The Project Owner would ensure that the presence of any LBP is identified before initiating demolition. The Project Owner would survey and develop a LBP removal plan before renovation of any housing. The removal plan will be coordinated and approved by the Air Force before any LBP abatement can be conducted. Removal of LBP shall comply with 29 CFR 1910. Additionally, the specifications for the renovation of new housing units and Air Force regulations prohibit the use of LBP.

Environmental Restoration Program. There is one contaminated site (RCRA AOC 2A) with ongoing remediation approximately 450 feet from the housing area. This site is located at the Vassar Lake AAFES Fueling Station (Building 3304), where soil and groundwater has been contaminated. The Vassar Lake AAFES Station is not within the area to be leased under the Proposed Action. It is unlikely that any activities associated with demolition and/or renovation would impact or be affected by remediation at RCRA AOC 2A because the site is not in proximity to the renovation zone. The Air Force would ensure that the following BMP is accomplished:

- The Project Owner would ensure that prior coordination with the ERP staff at 9 CES/CEVR is conducted before initiating construction activities. As part of this coordination, the Project Owner would be informed of all ERP sites on or near the housing area.

With implementation of this BMP, the Proposed Action would not be expected to result in interference with ongoing remediation or investigation activities at this site.

Pesticides. Herbicide and pesticide contamination of the housing sites are not suspected as these sites were not used for agricultural purposes. The use of herbicides and pesticides on the housing property has been conducted by licensed applicators and in accordance with applicable regulations. Herbicides and pesticides will continue to be applied to landscaping in the housing area to prevent the growth of weeds and the proliferation of insects following completion of renovation of housing units.

Radon. Radon levels above the RAL would not be expected in the housing areas. Housing demolition and renovation would not be expected to result in any impacts from radon.

Ordnance. Although unlikely, it is possible that UXO may be uncovered during renovation in the housing area. The Air Force will ensure that the following BMP is accomplished:

- The Project Owner will be required to stop work and notify the Air Force of any UXO uncovered during site work.

With implementation of this BMP, the Proposed Action would not be expected to result in impacts from UXO.

Polychlorinated Biphenyls. The Project Owner would be responsible for removal of any PCB in transformers or fluorescent light fixtures prior to demolition of housing. All PCB removal would be conducted in accordance with approved methods. The Proposed Action would not be expected to result in any impacts from PCB.

4.6.2 No Action Alternative

Hazardous Materials. There would be no change from the baseline condition for hazardous material usage or as a consequence of the No Action Alternative.

Hazardous Wastes. There would be no change from the baseline condition for hazardous waste management as a consequence of the No Action Alternative.

Asbestos. No housing demolition would occur. Asbestos containing material on existing structures would continue to be managed in accordance with the Beale AFB AMOP.

Lead Based Paint. No housing demolition would occur. Lead based paint on existing structures would continue to be managed in accordance with the Beale AFB Lead Based Paint Management Plan.

Environmental Restoration Program. No housing units would be demolished or constructed. Therefore, no ERP sites would be affected.

Pesticides. No housing units would be demolished or constructed. Therefore, herbicide and pesticide use would continue on the existing landscaped areas.

Radon. No housing units would be demolished or constructed. Radon levels above the RAL would not be expected in the existing housing areas. Therefore, impacts from radon would not be anticipated.

Ordnance. No housing units would be demolished or constructed. Although unlikely, it is possible that UXO may be uncovered in the housing area by occupants.

Polychlorinated Biphenyls. No housing units would be demolished or constructed. Any PCB in the housing areas would be left in place and managed in accordance with the Beale AFB management requirements.

4.6.3 Alternative 1 (Construction)

Alternative 1 would result in replacement of existing housing units in addition to demolition and renovation. The impacts of Alternative 1 would be similar to the Proposed Action as described in Subchapter 4.6.1.

4.6.4 Alternative 2 (Major Renovation and Construction)

The impacts of the alternative to renovate 60 percent, and replace 40 percent, of housing units on Beale AFB would be similar to the Proposed Action as described in Subchapter 4.6.1.

4.6.5 Cumulative Impacts

Hazardous Materials. Other planned projects may occur at Beale AFB and in surrounding areas, during the same period as the Proposed Action. As with the Proposed Action, it is anticipated that the quantity of products containing hazardous materials used would be minimal, and their use would be temporary. Other projects would also be required to comply with installation procedures for the handling of hazardous materials. The Proposed Action, when combined with other actions, would not result in cumulative impacts to hazardous material management.

Hazardous Wastes. Any hazardous waste generated as a result of the proposed demolition or renovation would be properly contained, stored, and disposed by the Project Owner in accordance with applicable state regulations and the appropriate Beale AFB plans. Any increases in hazardous waste resulting from these other actions would not impact hazardous waste management at the Base because the installation would continue to comply with requirements and not be subject to additional regulatory requirements by the USEPA or the State of California. The Proposed Action, when combined with other actions, would not result in cumulative impacts to hazardous waste.

Asbestos. Any ACM encountered during demolition from the Proposed Action and other actions would be managed in accordance with established regulations and guidance, including the Beale AFB AMOP. The Proposed Action, when combined with other actions at Beale AFB, would not result in cumulative impacts to asbestos management.

Lead Based Paint. Any lead based paint encountered during demolition for the Proposed Action and other planned projects would be managed in accordance with established regulations and guidance. No

cumulative impacts would be expected. The Proposed Action, when combined with other actions at Beale AFB, would not result in cumulative impacts to lead based paint management.

Environmental Restoration Program. Ongoing remediation programs at ERP sites at Beale AFB would not be affected by the demolition activities and the renovation and occupancy of privatized housing. With coordination of planned projects with ongoing ERP activities, no cumulative effects would be expected. The Proposed Action, when combined with other actions at Beale AFB, would not result in cumulative impacts to ERP activities.

Pesticides. Pesticide use and disposal from the Proposed Action and other actions would be managed in accordance with established regulations and guidance. The Proposed Action, when combined with other actions, would not result in cumulative impacts from pesticides.

Radon. Radon levels above the RAL would not be expected from the Proposed Action or other actions planned for Beale AFB. The Proposed Action, when combined with other actions, would not result in cumulative impacts from radon.

Ordnance. Although unlikely, it is possible that UXO may be uncovered during renovation or construction in the housing area. The Proposed Action, when combined with other actions, would not result in cumulative impacts from UXO.

Polychlorinated Biphenyls. Handling of PCB from the Proposed Action and other actions would be managed in accordance with established regulations and guidance. The Proposed Action, when combined with other actions, would not result in cumulative impacts from PCB.

4.7 BIOLOGICAL RESOURCES

Effects on biological resources would be considered significant if the federal action: substantially diminished habitat for a plant or animal species; resulted in an impact to threatened or endangered species; substantially diminished a regionally or locally important plant or animal species; interfered substantially with wildlife movement or reproductive behavior; resulted in a substantial infusion of exotic plant or animal species; or, resulted in detrimental effects on wetlands or floodplains.

4.7.1 Proposed Action

The Proposed Action would result in renovation of existing housing and lease of unimproved land on Beale AFB. Impacts to biological resources would not occur because the housing areas are developed or otherwise previously disturbed and do not provide habitat for any listed species. The Proposed Action would not result in construction of housing on the unimproved open space in Parcel B.

The Proposed Action would not result in significant impacts to threatened or endangered species because no suitable habitat for listed species is found in the project area. No federally-listed species are present in the area of the Proposed Action. The State-listed endangered and fully protected American peregrine falcon occasionally forages over grasslands to the east and south of the housing area, but does not nest in the area. Potential impacts to peregrine falcon would not be considered significant. The Proposed Action would not affect any species of special interest.

The Proposed Action would not be expected to substantially diminish a regionally or locally important plant or animal species. Upon completion of renovation, the housing areas would be landscaped in accordance with vegetation management that improves habitat for native plant and wildlife species on Beale AFB, in accordance with the grounds maintenance and land management goals of the INRMP. The Proposed Action would not be expected to result in a substantial infusion of exotic plant or animal species.

The Proposed Action would not be expected to result in significant impacts to special-status species. The Proposed Action would result in the leasing of unimproved land in Parcel A including grassland habitat east of the housing area to the Base boundary. Impacts to burrowing owl in the undeveloped portion of Parcel A would not be expected because no construction or other development is planned at this location.

Impacts to northwestern pond turtle would not be anticipated because the area of the Proposed Action at Dry Creek includes only that portion of land over the existing sewer line, and no construction or other improvements at this location is planned.

The Proposed Action would not include any construction activities in wetlands or floodplains. The boundaries of the Proposed Action do not include the Dry Creek Riparian Preservation Area. The Proposed Action would not be expected to result in significant adverse effects on wetlands or floodplains.

To prevent impacts to biological resources, the Air Force will ensure that the following BMPs are accomplished:

- The two isolated stands of oak trees in Parcel A east of the Mountain View housing area will be retained in place. Any structures or improvements in the undeveloped portion of Parcel A will be designed to avoid the two stands of oak trees.
- Construction work or other improvements at Dry Creek in the area of the existing sewer line will not commence without the presence of a biological monitor who will ensure that northwestern pond turtle is not present in the area.
- Landscaping for the housing areas will specify drought-tolerant, native shrubs and plants.
- To avoid disturbance to adjacent riparian habitat, the Base Natural Resources Manager will establish construction work limits along the corridor of the Dry Creek Riparian Preservation Area west of Beale West and Gold Country housing areas. All equipment storage areas and construction laydown areas will be sited within disturbed areas. Construction work in the creek will be prohibited.

4.7.2 No Action Alternative

The No Action Alternative would not result in any construction activities at Beale AFB. No change to biological resources would occur.

4.7.3 Alternative 1 (Construction)

Alternative 1 (Construction) would include construction of replacement housing units in the grassland habitat of Parcel B. This alternative would result in loss of up to 186 acres of grassland habitat in Parcel B.

In addition to the four BMPs identified in Subchapter 4.7.1, the Air Force will ensure that the following BMP is accomplished for Alternative 1:

- The Base Natural Resources Manager (9 CES/CEVA) will ensure that monitoring of Western burrowing owl is accomplished in advance of site clearance for any housing construction in Parcel B.

With incorporation of the BMP to avoid impacts to biological resources, loss of grassland habitat in Parcel B would not be considered a significant impact to biological resources.

4.7.4 Alternative 2 (Major Renovation and Construction)

The impacts of the alternative to renovate 60 percent, and replace 40 percent, of housing units on Beale AFB would be the same as Alternative 1 (Construction).

4.7.5 Cumulative Impacts

Other planned projects may occur at Beale AFB or in areas surrounding the Base, during the same period as the Proposed Action. As with the Proposed Action, each of these planned projects would be evaluated for impacts to biological resources. Other projects would also be required to comply with natural resource

management goals and objectives. The Proposed Action when combined with other actions in the project area, would not be expected to result in cumulative impacts to biological resources.

The housing area proposed in the Yuba Highlands Specific Plan area may result in loss of wildlife corridors between Spenceville and the northeastern portion of Beale AFB. Alternatives 1 (Construction) and 2 (Major Renovation and Construction) would result in construction of housing on undeveloped land in the southern portion of the Base. This would contribute to the cumulative impact of ongoing habitat loss in the area.

4.8 CULTURAL RESOURCES

Impacts on cultural resources would be considered significant if a federal undertaking would directly or indirectly impact archaeological resources, historic resources, or traditional cultural resources that are eligible or potentially eligible for listing on the NRHP. The term "eligible for inclusion in the National Register" includes both properties formally determined as such by the Secretary of the Interior and all other properties that meet NRHP listing criteria. Therefore, sites not yet evaluated are considered potentially eligible for inclusion in the NRHP and, as such, are afforded the same regulatory consideration as nominated properties.

4.8.1 Proposed Action

Historic Architectural Resources. The Proposed Action would not be located in or near any NRHP-eligible architectural historic sites on Beale AFB. None of the existing housing units or other buildings to be conveyed are eligible for listing on the NRHP. For these reasons, the Proposed Action would not result in any significant impacts on historic resources.

Archaeological Resources. The Proposed Action would not be expected to result in impacts to known archaeological resources. The archaeological site RB-1 is located within the property to be privatized, however it is not within an area planned for development. The Proposed Action would involve ground-disturbance which may result in the inadvertent discovery of subsurface cultural materials that that may be eligible for the NRHP and subject to regulations defined in 36 CFR 800. Damage to, or loss of any cultural artifacts would be considered a significant impact.

In order to avoid impacts to cultural resources, four BMPs have been identified for activities associated with the Proposed Action:

- The Air Force would ensure that ground-disturbing work, including utility improvements, is conducted to avoid displacement of archaeological sites within the conveyance boundaries.
- The 9 CES/CEV Cultural Resources Manager will be responsible for establishing a 150 ft buffer zone around archaeological sites within the conveyance boundaries. The area of sensitivity shall be staked and flagged by the Air Force, who shall also be responsible for the installation of a temporary fence or other construction barrier around the buffer area. The Air Force would ensure that work limits are established to avoid disturbance to archaeological sites.
- All equipment storage areas and construction laydown areas will be sited to avoid archaeological sites.
- In the event that previously undetected archaeological resources are discovered during earthwork, the construction contractor and/or Project Owner will be required to stop construction activities in the affected area (and a reasonable buffer exclusionary area) and contact the Base Cultural/Natural Resources Manager. Any unknown site or other cultural remains inadvertently discovered must be assumed to be potentially eligible for NRHP listing. The Base Cultural/Natural Resources Manager will then notify the Installation Commander about the nature, location and circumstances of the discovery. Where no human remains are involved, the Cultural/Natural Resources Manager shall consult with SHPO to obtain written approval for an emergency discovery treatment plan as required. In the event further investigation is required, any data recovery would be performed in accordance with the Secretary of the Interior's Standards and

Guidelines for Archaeological Documentation (48 FR 44734-37) and take into account the Council's publication, Treatment of Archaeological Properties.

With implementation of these BMPs, the Proposed Action would not be expected to result in impacts to archaeological resources.

The Air Force has completed NHPA Section 106 consultation with SHPO regarding implementation of the housing privatization proposal on Beale AFB. The SHPO has concurred with the Air Force determination of No Effect on historic properties (SHPO, 2004).

Traditional Cultural Resources. The Proposed Action would not be located in any area that is considered to contain traditional cultural resources. Therefore, impacts to traditional cultural resources are not expected as a result of the Proposed Action. The following BMP will be incorporated into project planning:

- The Air Force would ensure that Native American consultation and coordination is carried out in accordance with Section 5.5 of the CRMP in the event that ground-disturbance activities uncover traditional cultural resources.

4.8.2 No Action Alternative

Under the No Action Alternative, there would be no construction activities or change from the baseline conditions. Therefore, the No Action Alternative would have no impact on cultural resources.

4.8.3 Alternative 1 (Construction)

Historic Resources. Alternative 1 would not be located in or near any NRHP-eligible architectural historic sites on Beale AFB. For these reasons, Alternative 1 would not result in any impacts on historic resources.

Archaeological Resources. Alternative 1 would require demolition and replacement of housing units in the developed portion of Beale AFB. Alternative 1 would require ground-disturbance which may result in the inadvertent discovery of subsurface cultural materials that may be eligible for the NRHP and subject to regulations defined in 36 CFR 800. To avoid damage to, or loss of any cultural artifacts, the Air Force will ensure that BMPs described in Subchapter 4.8.1 are implemented during the design and construction of housing.

Alternative 1 would also result in construction of 200 housing units on 186 acres of unimproved open space in Parcel B. Two previously recorded archaeological sites are located in this area: CA-YUB-1161 has been determined to no longer qualify for the NRHP (SHPO, 2004); and, CA-YUB-1170H was previously determined not eligible for the NRHP. For these reasons, construction activities in Parcel B would not result in significant impacts to these archaeological sites.

Traditional Cultural Resources. Alternative 1 would not be located in any area that is considered to contain traditional cultural resources. Therefore, impacts to traditional cultural resources are not expected as a result of Alternative 1. The Air Force would ensure that the BMP described in Subchapter 4.8.1 is carried out in the event ground-disturbance activities uncover any traditional cultural resources.

4.8.4 Alternative 2 (Major Renovation and Construction)

The impacts of the alternative to renovate 60 percent, and replace 40 percent, of housing units on Beale AFB would be the same as Alternative 1 (Construction). The Air Force will ensure that the BMPs described for the Proposed Action are implemented for Alternative 2. With implementation of BMPs, impacts to cultural resources would not be expected to result from implementation of Alternative 2.

4.8.5 Cumulative Impacts

The Proposed Action is one of a number of other planned projects involving construction on Beale AFB and the surrounding area, as identified in Table 9. Assuming no discovery of previously unidentified sites occurs during construction, the Proposed Action or Alternative Actions are unlikely to contribute to cumulative impacts on cultural resources. The Proposed Action, Alternative 1 or Alternative 2 could have the potential to cumulatively contribute to disturbances of previously undetected cultural material that may be present beneath the surface. However, the implementation of BMPs would identify specific actions to prevent or minimize such impacts. Therefore, the Proposed or Alternative Actions, when combined with other actions, would not be expected to contribute to cumulative impacts on cultural resources.

4.9 GEOLOGICAL RESOURCES

An impact to geological resources would be considered significant if it resulted in substantial erosion or if alteration of ground surface features occurred through activities such as excavation.

4.9.1 Proposed Action

Construction at Beale AFB would occur within an area where the physiographic features and geologic resources have been previously disturbed and modified by prior construction of military family housing. Alteration of ground surface would be minimal compared to existing conditions. Therefore, impacts to physiographic and geological resources would be minimal.

Soils at Beale AFB should not present future development obstacles, particularly since the erosion potential of soils in the area is low. Earthwork at these locations and at the undeveloped sites would be planned and conducted in such a manner as to minimize the duration of exposure of unprotected soils. Installation of BMPs such as described in Subchapter 4.5.1 would minimize erosion during demolition. Grass and other landscaping would be reestablished in the disturbed areas immediately after renovation is completed, thereby reducing the potential for erosion. Therefore, impacts to soils would not be considered significant.

The following BMPs would be accomplished:

- The Air Force would ensure that specific recommendations identified in the geotechnical investigation to be conducted for the housing area are followed to the maximum extent practicable; and,
- The Air Force would ensure that the BMPs identified in Subchapter 4.5.1 are carried out to avoid or minimize potential impacts from sedimentation and erosion.

4.9.2 No Action Alternative

No ground disturbing activities would occur. Therefore, no impact to physiographic features and soils would be anticipated.

4.9.3 Alternative 1 (Construction)

The impacts of the alternative to replace housing units (i.e., new construction) on Beale AFB would be similar to the Proposed Action. Alternative 1 (Construction) would result in alteration of the ground surface and construction of housing on the undeveloped Parcel B, an area where the physiographic features and geologic resources have been modified by grazing activities. Therefore, impacts to physiography and geology would be minimal.

Earthwork on the undeveloped Parcel B would be conducted in such a manner as to minimize the duration of exposure of unprotected soils. Installation of BMPs such as described in Subchapter 4.5.1 would minimize erosion during demolition and construction. Grass and other landscaping would be reestablished in disturbed areas immediately after construction is completed, thereby reducing the potential for erosion. Therefore, impacts to soils would not be considered significant.

4.9.4 Alternative 2 (Major Renovation and Construction)

The impacts of the alternative to renovate 60 percent, and replace 40 percent, of housing units on Beale AFB would be similar to Alternative 1 (Construction).

4.9.5 Cumulative Impacts

The Proposed Action is one of a number of other planned projects involving construction on Beale AFB and in the surrounding area outside the Base, as identified in Table 9. Planned projects involving construction activity at Beale AFB near the project area would occur in areas where the physiographic features and soils have been previously disturbed and modified by prior construction or grazing. The Proposed Action, when combined with other actions, would not be expected to cumulatively contribute to impacts to geologic resources.

4.10 INFRASTRUCTURE AND UTILITIES

Impacts to infrastructure and utility systems would be considered significant if the federal action substantially increased the demands on the utility systems, resulting in the need for additional capacity or new facilities.

4.10.1 Proposed Action

The Proposed Action would result in no net increase of housing units over the planned baseline of 1,444 units. However, the number of on-base and off-base residents would vary from year-to-year depending on the number of units that would require renovation.

Water Supply. The Proposed Action would result in no net change in water consumption from the privatized housing on Beale AFB. The continued consumption would not be expected to result in any significant impact on the ability of the water supply system to provide potable and domestic water.

Wastewater Treatment. The Proposed Action would result in no net change in wastewater generation. Wastewater would continue to be treated at the Base WWTP that is adequate to meet future needs.

Storm Water Management. The Proposed Action would result in improvements to the existing storm water system within the existing housing areas. Alternative 1 (Construction) would result in the need for new storm water systems on the undeveloped site in Parcel B. The privatized housing would include improvements to surface and storm drainage systems as part of the housing area design. For this reason, impacts to storm water management would not be expected as a result of the Proposed Action or any alternatives.

Natural Gas. The Proposed Action would result in an increase in consumption of natural gas for the privatized housing units on Beale AFB. Dwelling units are heated electrically and would be converted to natural gas. This increased consumption would not be expected to result in any significant impact to Pacific Gas and Electric Company (PG&E), the local service provider. The new housing units would include energy conservation techniques and energy efficient equipment. Impacts to natural gas would not be considered significant.

Electricity. The Proposed Action would result in a decrease in electricity consumption by the privatized housing units that would result from conversion to natural gas heating. Electricity would continue to be provided by PG&E. The new housing units would include energy conservation techniques and energy efficient equipment to achieve reductions in electricity consumption. This energy consumption reduction would enhance the ability of Beale AFB to achieve the reduction goals specified in AFI 32-7080 and meet the objectives of Executive Order 13123. The Air Force will ensure that the following BMP is accomplished:

- In accordance with Executive Order 13123, the Air Force will ensure that federal and Air Force energy efficiency goals are included in design of the privatized housing units.

With implementation of this BMP, impacts to electricity would not be considered significant.

Solid Waste Management. The solid waste generated from the construction and demolition activities would result in construction debris being disposed in the landfill operated by Yuba-Sutter Disposal, Inc. The Proposed Action would result in no net change in the generation of solid waste from the privatized housing units that would be constructed on Beale AFB. The local landfill is permitted and has sufficient capacity to accommodate disposal needs. For this reason, the Proposed Action would not result in any impact to solid waste management.

4.10.2 No Action Alternative

The No Action Alternative would result in no change to baseline conditions for water supply, wastewater treatment, storm water management, natural gas, electricity and solid waste management.

4.10.3 Alternative 1 (Construction)

The impacts of the alternative to replace housing units (i.e., new construction) on Beale AFB would be similar to the Proposed Action. Alternative 1 (Construction) would result in the need for new storm water systems on the undeveloped site in Parcel B. The privatized housing would include improvements to surface and storm drainage systems as part of the housing area design. For this reason, impacts to storm water management would not be expected as a result of the Proposed Action or any alternatives.

4.10.4 Alternative 2 (Major Renovation and Construction)

The impacts of the alternative to renovate 60 percent, and replace 40 percent, of housing units on Beale AFB would be the same as Alternative 1.

4.10.5 Cumulative Impacts

The Proposed Action is one of a number of other planned projects involving construction on Beale AFB and surrounding areas outside the Base, as identified in Table 9. The Proposed Action, when combined with other planned projects, would not be expected to cumulatively contribute to adverse effects on infrastructure or utility systems.

4.11 TRANSPORTATION

In considering the basis for evaluating the significance of impacts on transportation systems, several factors were examined, including: 1) the degree to which a transportation system would have to modify operating practices and personnel requirements to support the action; 2) the capacity required from new or revised transportation systems; and 3) the degree to which the increased demands from the action would reduce the reliability of transportation systems or aggravate already existing adverse conditions.

4.11.1 Proposed Action

Although the volume of traffic associated with the demolition and renovation cannot be accurately estimated, it is anticipated that this traffic would be minor when compared to the volume from the existing housing units. Traffic associated with the Proposed Action would be routed to minimize disruption to the normal daily activities of residents. However, streets within the housing areas could be closed at various times throughout the project due to demolition and renovation activities. It is anticipated that traffic impacts would be localized to a specific area and would be temporary, lasting as long as the project activity in that area. Renovation activities would not be expected to cause traffic congestion. Impacts to transportation during demolition and renovation activities would not be considered significant.

During the Proposed Action, there may be periods of time when housing occupants would relocate to off-base housing until units are renovated. The military personnel who would be displaced from housing and reside off-base would commute to the Base to work. It is estimated that approximately 250 families may be temporarily living off the Base each year until housing units are renovated or replaced. This would

temporarily increase entries and exits at the Base gates over existing conditions. The Base transportation network is sufficient to handle current requirements and is capable of supporting future growth without major roadway improvements. For this reason, the temporary condition of increased off-base housing for military members would not be expected to result in significant impacts to traffic.

The Proposed Action would result in no net change in the baseline number of housing units. After the project is completed, it is expected that the same number of military families would reside on the Base when compared to the baseline. Therefore, at completion of the project, no net change in traffic volumes would be expected. The design of the housing areas would consider traffic patterns to and from the areas and would attempt to separate pedestrian traffic from vehicular traffic, as well as reduce on-street parking. Traffic flow should improve within the housing areas after all activity is complete because of street modifications to improve vehicular and pedestrian movement within the housing areas.

4.11.2 No Action Alternative

No housing units would be demolished, constructed or renovated as a result of the No Action Alternative, and the existing units would continue to be used by military families. Traffic flow in and around the housing areas would continue at current levels and the existing transportation network would continue to accommodate existing levels. No significant transportation impacts occur under the existing condition.

4.11.3 Alternative 1 (Construction)

The impacts of the alternative to replace housing units (i.e., new construction) on Beale AFB would be the similar to the Proposed Action. Alternative 1 (Construction) would result in the construction of new housing in the undeveloped Parcel B south of Beale East housing. As a result of this alternative, new roadways would be constructed in the new housing area. Roadways would be designed to provide adequate access and connection to the existing transportation network. Alternative 1 (Construction) would not be expected to result in excessive demands on the existing roadway capacity. Impacts to transportation would not be considered significant.

4.11.4 Alternative 2 (Major Renovation and Construction)

The impacts of the alternative to renovate 60 percent, and replace 40 percent, of housing units on Beale AFB would be similar to Alternative 1 (Construction).

4.11.5 Cumulative Impacts

Although demolition and construction activities associated with the other planned projects may occur at the same time as the Proposed Action, other projects would occur in separate areas. The distance between other planned projects and the area of the Proposed and Alternative Actions would minimize the potential for combining the traffic from all activities. No significant transportation impacts would be anticipated for either cumulative condition. The Yuba Highlands Specific Plan identifies a planned roadway network for access to planned housing northeast of Beale AFB. The Proposed Action, when combined with other actions, would not result in cumulative impacts to transportation systems.

4.12 PUBLIC SERVICES

An impact to public services would be considered significant if it resulted in the need for new or increased government services.

The proposed housing privatization would result in conveyance of housing units to a private Project Owner for operations and maintenance. Although it is expected that Beale AFB housing would be occupied by military personnel and their families, it is also possible that eligible, non-military tenants could occupy the housing when the units are no longer needed by the Base. It is expected that the housing Project Owner would manage the housing areas by continuing services from the Air Force. It is also possible that public services could be provided by the local community. The Air Force would coordinate any future proposed changes in public services needs with the appropriate local police and fire protection

agencies as well as emergency medical service providers. The timing and number of non-military tenants that may require local services in the future cannot be determined. For this reason, potential impacts to off-base and on-base public services are evaluated in this subchapter.

4.12.1 Proposed Action

Police. The Proposed Action would result in a no net increase in housing units on Beale AFB. It is expected that police protection services would continue to be provided by the 9th Security Forces (SFS). This privatization of housing units would not be expected to result in any significant impact on the ability of the 9th Mission Support Group to provide security services. In the event that housing is subsequently occupied by non-military tenants, it would be expected that police protection services would continue to be provided by the 9th SFS. It is not anticipated that Base housing would be included in the service area of any local police department due to access constraints and resource limitations. Based on this assumption, the Proposed Action would not result in any significant impact on the ability of the local police departments to provide protection within their service areas.

Fire Protection. It is expected that fire protection services would continue to be provided by the Beale AFB Fire Department. In the event that housing is subsequently occupied by non-military tenants, it would be expected that fire protection services would continue to be provided by the Beale AFB Fire Department. It is not anticipated that Base housing would be included in the service area of any local fire departments due to access constraints and resource limitations. Based on this assumption, the Proposed Action would not result in any significant impact on the ability of any of the local fire departments to provide fire protection within their service areas.

Medical Services. The Proposed Action would result no change in the number of families that would continue to require medical clinic services. Medical services would continue to be provided by the medical clinics on Beale AFB. In the event that housing units are subsequently occupied by non-military tenants, emergency medical services would be provided by on-base services. Non-military tenants would be required to arrange for medical services from the Base Clinic while residing on the Base. The Proposed Action or any alternatives would not be expected to result in any significant impact on the ability of the local medical facilities to provide services in the area.

4.12.2 No Action Alternative

The Proposed Action would not result in any change to baseline conditions for police, fire protection or medical services.

4.12.3 Alternative 1 (Construction)

The impacts of the alternative to replace housing units (i.e., new construction) on Beale AFB would be the same as the Proposed Action.

4.12.4 Alternative 2 (Major Renovation and Construction)

The impacts of the alternative to renovate 60 percent, and replace 40 percent, of housing units on Beale AFB would be the same as the Proposed Action.

4.12.5 Cumulative Impacts

The Proposed Action is one of a number of other planned projects on Beale AFB and in the surrounding area, as identified in Table 9. Each of these other planned projects would be required to evaluate the effects of the action on public services. The Proposed Action, when combined with other planned projects, would not be expected to cumulatively contribute to impacts on police protection, fire protection or medical services.

4.13 SOCIOECONOMICS

A socioeconomic impact would be considered significant if the federal action resulted in substantial growth or concentration of population or the need for substantial new housing or public services.

4.13.1 Proposed Action

Population. The Proposed Action would result in no net increase of housing units at Beale AFB. These units would be designated for occupancy by military personnel stationed on the Base. The additional units would provide housing for existing military personnel as planned renovations and replacements occur over the years. During this period, many of the existing housing units would not be available, resulting in military families being relocated to new units while their former units are undergoing renovation. The Proposed Action and alternatives would not be expected to result in any direct population growth on the Base or in the local community.

Housing. The Proposed Action and alternatives would not result in any effect on housing because the privatized units would initially be occupied by military personnel only. In the event that the units are no longer required by the military, they may become available to other occupants on a priority basis. When units are available to the general public, the Proposed Action and alternatives could result in an increase to the available housing supply. An increase in the available housing supply in the local area would be considered a beneficial effect.

Employment. The Proposed Action and alternatives would result in additional employment associated with the demolition, renovation, operation and management of housing at Beale AFB. However, it is possible that new positions associated with the privatization of housing would replace existing Air Force positions. The Proposed Action, therefore, would not be expected to result in a substantial change in the net employment associated housing on Beale AFB. While construction-related employment is generally a temporary condition, permanent employment for operation and management of privatized housing would be considered a beneficial effect.

Economy. The Proposed Action would result in additional revenue associated with the demolition, renovation, operation and management of privatized housing at Beale AFB. The additional revenue from employment, services and purchases would be considered a beneficial effect on the local economy.

4.13.2 No Action Alternative

The No Action Alternative would result in no changes from baseline socioeconomic conditions.

4.13.3 Alternative 1 (Construction)

The impacts of the alternative to replace housing units (i.e., new construction) on Beale AFB would be similar to the Proposed Action.

4.13.4 Alternative 2 (Major Renovation and Construction)

The impacts of the alternative to renovate 60 percent, and replace 40 percent, of housing units on Beale AFB would be similar to the Proposed Action.

4.13.5 Cumulative Impacts

The Proposed Action is one of a number of other planned projects involving construction on Beale AFB and the surrounding area, as identified in Table 9. The Proposed Action, when combined with other actions, would not be expected to cumulatively contribute to adverse effects on socioeconomic conditions.

4.14 INDIRECT AND CUMULATIVE IMPACTS

While direct environmental effects are caused by an action and occur at the same time and place as the action, indirect effects are those effects caused by the action that occur at a later time or are farther removed in distance from the action, but at the same time reasonably foreseeable. As defined in 40 CFR Part 1508.8, indirect effects may include growth inducing effects and other effects related to the induced changes in the pattern of land use, population density or growth rate, and related effects on air and water and other natural systems, including ecosystems. The Proposed Action would result in no net change in the number of housing units on Beale AFB. The Proposed Action would result in conveyance of housing units to a private Project Owner for long-term operation and maintenance. In the future, these units could be occupied by eligible, non-military tenants if not required for military personnel. The availability of additional housing units to the general public would not be expected to result in any indirect effects associated with population growth or land use. The housing area of the Base is located in rural/agricultural setting that extends beyond the boundaries of the Base, and change to land use patterns would not occur outside of the Base boundaries as a result of the Proposed Action or Alternative Actions.

As defined in 40 CFR Part 1508.7, a cumulative impact is the impact on the environment that results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time. Cumulative impacts of the Proposed and Alternative Actions have been evaluated in Subchapters 4.1 through 4.12. With incorporation of BMPs that have been identified for the Proposed Action and Alternative Actions, no cumulative impacts would be anticipated.

4.15 UNAVOIDABLE ADVERSE ENVIRONMENTAL IMPACTS

Section 102(2)(C)(ii) of NEPA requires Federal agencies to identify any adverse environmental effects that cannot be avoided should the Proposed Action be implemented.

Unavoidable impacts would result from the implementation of the Proposed Action and alternatives. However, these impacts would not be considered significant. Noise from demolition and renovation activities would occur. This increase in noise level would be short-term and limited to the immediate area of construction. Noise-generating activities would take place during daytime hours and would be at levels that would not cause hearing impairment. The emission of air pollutants associated with demolition and renovation would be an unavoidable condition, but is not considered significant. The loss of aggregate used for concrete, which would become inaccessible, would occur as a result of the Proposed Action or either alternative. However, the impact would be insignificant due to the relatively small amount needed. Site grading would remove vegetation. The affected sites are in an area of the Base that was previously disturbed by prior housing development and grazing activities. The sites are not located on habitat that has been designated for conservation purposes. The site does not provide significant habitat for any federal or state listed endangered or threatened plants or animals. The use of nonrenewable energy resources is an unavoidable impact, but the amount used would not be considered significant. Potential impacts identified in this analysis would be avoided through the use of BMPs described in Subchapters 4.1 through 4.12.

4.16 RELATIONSHIP BETWEEN SHORT-TERM USES AND ENHANCEMENT OF LONG-TERM PRODUCTIVITY

Section 102(2)(C)(iv) of NEPA requires Federal agencies to identify the relationship between local short-term uses of the human environment and the maintenance and enhancement of long-term productivity.

The Proposed Action or any alternative would not result in an intensification of land use on Beale AFB. Development of the Alternatives 1 or 2 would result in a loss of up to approximately 186 acres of open space. This open space is within the development envelope of the Base, or otherwise not designated for future conservation. The undeveloped areas that may be used for construction of new housing were formerly used as grazing areas. Grazing is no longer taking place at the site for reasons not related to

the Proposed Action, and future grazing activities will be managed in accordance with Base plans. Consequently, the Proposed Action would not result in impacts to grazing. The Proposed Action and alternatives would result in continued consolidation of new housing within the existing housing areas. Therefore, the Proposed Action and the Alternative Actions would not be expected to result in any cumulative land use or aesthetic impacts. Long-term productivity of the area would not be affected by the Proposed Action or any alternative.

4.17 IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES

Section 102(2)(C)(v) of NEPA requires Federal agencies to identify any irreversible and irretrievable commitments of resources that would be involved in the Proposed Action should it be implemented. This could include the consumption of material resources, energy resources, and human resources. Irreversible and irretrievable resource commitments are related to the use of nonrenewable resources and the effects the use of these resources would have on consumption or destruction of a resource that could not be replaced in a reasonable period of time.

The irreversible environmental changes that would result from implementation of the Proposed or either Alternative Action involve the consumption of material resources, energy resources, and human resources. The use of these resources is considered to be permanent.

Material resources that would be used for the Proposed Action or any alternatives include building materials (for renovation or construction), concrete for the house slabs, driveways, and sidewalks, asphalt for the streets, and other various materials. The materials that would be consumed are not in short supply and are readily available from suppliers in California. Use of these materials would not limit other unrelated construction activities, and therefore, would not be considered significant.

Energy resources would be irretrievably lost. These include petroleum-based products such as gasoline and diesel fuel, natural gas and electricity. Gasoline and diesel fuel would be used for operation of the construction equipment and other vehicles. Electricity would be used in the units upon occupancy. However, because the resultant units would be more energy efficient than existing units, consumption of electricity would be expected to decrease. The Proposed Action or any alternative would result in no net change in the number of housing units as compared to the planned baseline. Consumption of energy resources would not place a significant demand on their availability in California. Therefore, no significant impacts would be expected.

The use of human resources for demolition, renovation and construction is considered an irretrievable loss, only in that it would preclude such personnel from engaging in other work activities. However, the use of human resources for the Proposed Action or any alternative represents employment opportunities, and is considered beneficial.

CHAPTER 5

LIST OF PREPARERS

This chapter provides the names and qualifications of staff members who were primarily responsible for preparation of this EA. This list includes the key management personnel, investigators and technical personnel that contributed to document preparation.

Name	Degree	Professional Discipline	Years of Experience
Crisologo, Rosemarie	B.S., Biological Sciences M.S., Environmental Engineering	Project Management; Environmental Science	21
Gaddi, Elvira, P.E.	B.S., Chemical Engineering M.S., Chemical Engineering	Project Management; Environmental Compliance	25
Matsunobu, Bryan	B.S. in Geology and Geophysics	Environmental Science	5
Wallin, John	B.A., Biology M.A., Management	Environmental Science	27
Wooten, R.C.	Ph.D., Ecology/Biology	Environmental Science	31

CHAPTER 6

LIST OF PERSONS AND AGENCIES CONSULTED

This chapter lists the individuals consulted during the preparation of this EA

6.1 FEDERAL AGENCIES

6.1.1 U.S. Air Force

Air Force Center for Environmental Excellence (Brooks AFB, Texas)

Gauger, George (AFCEE/BSW)

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6.2 STATE AGENCIES

6.2.1 Department of Parks and Recreation

Office of Historic Preservation

Mikesell, Stephen D. (Acting State Historic Preservation Officer)

6.2.2 Department of Fish and Game

Whitmore, Dale

CHAPTER 7

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APPENDIX A

INTERAGENCY/INTERGOVERNMENTAL COORDINATION OF ENVIRONMENTAL POLICY LETTERS

STATE OF CALIFORNIA – THE RESOURCES AGENCY
ARNOLD SCHWARZENEGGER, *Governor*

OFFICE OF HISTORIC PRESERVATION
DEPARTMENT OF PARKS AND RECREATION
P.O. BOX 942896
SACRAMENTO, CA 94296-0001
(916) 653-6624 Fax: (916) 653-9824
calshpo@ohp.parks.ca.gov
www.ohp.parks.ca.gov

June 9, 2004

REPLY TO: USAF040506A

Gergory M. Perkinson, Lt. Col. USAF Bmf/cc 16 Jun 04
Base Civil Engineer
9 CES/CC
6451 B Street
Beale Air Force Base, CA 94296-0001

Re: Military Family Housing Privatization Proposal for Beale AFB, CA

Dear Lt. Col. Perkinson:

Thank you for your May 3, 2004 letter initiating consultation on the above referenced undertaking. You are consulting with me in accordance with 36 CFR Part 800, regulations implementing Section 106 of the National Historic Preservation Act. The Air Force is proposing to privatize military family house on the base, including leasing 1,230 acres of undeveloped land. Your letter states the action would result in renovation of 179 MFH units, demolition of 1,265 units, construction of 1,265 replacement units, and construction of related community enhancements.

The undeveloped land has been surveyed and contains two archaeological sites: CA-YUB-1161 and CA-YUB-1170H. Your letter and the supporting documentation you have provided explains that CA-YUB-1170H was previously determined not eligible, but CA-YUB-1161 was determined eligible. Subsequent work by Pacific Legacy concluded that CA-YUB-1161 no longer qualifies for the National Register because the important information has been recovered from this sparse lithic scatter. Based on my review of the documentation, I am able to concur in this determination.

I had requested additional information of Bruce Reinhardt, base Cultural Resources Manager regarding the dates of construction for the houses that are to be demolished. Mr. Reinhardt assured my staff that the houses were built in the 1960s and have no potential for exceptional significance, thus they are not historic properties.

Given that there are no historic properties present within the Area of Potential Effects for this undertaking, you have concluded that "there will be no affect on historic properties." I do not object to the Air Force making a finding of No Historic Properties Affected, pursuant to 36 CFR 800.4(d)(1), for this undertaking.

Thank you for the opportunity to comment on this undertaking. If you have any questions about my comments, please contact staff archaeologist Anmarie Medin at (916) 654-4614 or at amedi@ohp.parks.ca.gov.

Sincerely,

Stephen D. Mikesell
Acting State Historic Preservation Officer

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DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 9TH MISSION SUPPORT GROUP (ACC)
BEALE AIR FORCE BASE, CALIFORNIA

MEMORANDUM FOR OFFICE OF HISTORIC PRESERVATION
Department of Parks and Recreation
PO Box 942896
Sacramento CA 94296-0001

MAY 3 2004

FROM: 9 CES/CC
6451 B Street
Beale AFB CA 95903-1708

SUBJECT: Military Family Housing Privatization Proposal for Beale AFB, CA

1. The Air Force proposes to privatize existing military family housing (MFH) at Beale Air Force Base (AFB), California. The proposed action would result in the conveyance of conveying 1,553 MFH units and the leasing of 1,230 acres of undeveloped land on the Base. The proposed action would result in renovation of 179 MFH units, demolition of 1,265 units, construction of 1,265 replacement units, and construction of related community enhancements on Beale AFB. The undeveloped land is located adjacent to the existing Family Housing Area and includes a 275-acre parcel known as Parcel B (Attachment 1). Following is a discussion of cultural resources surveys and any potential impacts from this proposal:

a. Existing MFH. This area has been heavily disturbed by prior development and was eliminated from cultural surveys in the past. The Beale AFB Cultural Resources Management Plan, February 1998, includes this area as an "Archaeologically Free Zone" and is considered to be clear of sites eligible to the National Register of Historic Places.

b. Parcel B. The project site has been surveyed for cultural resources in 1984, by Donovan, Mary, Hampson, Paul and Cleland, James with Wirth Environmental Services, Entitled "Intensive Cultural Resource Survey of Excess Area, Beale AFB, CA, Final Report". This study is also referenced in the Beale AFB Cultural Resources Management Plan, February 1998, Table 3-12 (a copy was provided to your office in 1998). The survey identified two sites: Site CA-YUB-1161 and CA-YUB-1170H (see Attachment 2 for site locations and Attachment 3 for archaeological site records). According to your letter dated 18 Oct 1984 (Attachment 4), site CA-YUB-1161 was determined eligible for the National Register and site CA-YUB-1170H is determined not eligible. This letter also recommended a single unit excavation and analysis of recovered materials at Site CA-YUB-1161. This work was completed in 1989 by an Air Force contractor with the National Park Service and documented in a report entitled "Archaeological Inquiry at the Surface Lithic Scatter Site YUB-1161" by Donald J. Storm, 1989.

c. In addition, further investigation for the site was accomplished and documented in a letter from Pacific Legacy, an Air Force contractor (Attachment 5). This work concluded that the site no longer qualifies for inclusion in the National Register of Historic Places under criterion (d) or any other criteria.

Global Power for America

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2. Therefore, we have determined that (1) sufficient cultural resources surveys have been completed in the proposed project area; (2) there are no resources eligible to the National Register of Historic Places that will be impacted by this project, and (3) there will be no affect on historic properties. We request your concurrence that there will be no affect on historic properties. As an additional measure an inadvertent discovery clause will be included in the project construction plan.

3. Should you have any questions regarding this letter, please contact Mr. Bruce Reinhardt our Cultural Resources Manager at (530) 634-2642 or bruce.reinhardt@beale.af.mil.

GREGORY M. PERKINSON, Lt Col, USAF
Base Civil Engineer

Attachments:
1. Project Location Maps
2. Sites CA-YUB 1161 and 1170H Map
3. Archaeological Site Records of CA-YUB 1161 and 1170H
4. SHPO Ltr, 18 Oct 84
5. Pacific Legacy Post Field Report, 25 Aug 98

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APPENDIX B

SPECIAL STATUS SPECIES LISTS

Table B-1. Special-Status Plant Species Known or with Potential to Occur at Beale AFB

Common and Scientific Name	Listing Status[a] Federal/State/ CNPS	Distribution	Preferred Habitat	Occurrence at Beale AFB
Adobe lily (*Fritillaria pluriflora*)	SC/--/1B	East and west edges of the Sacramento Valley and adjacent foothills	Heavy clay soil with grassland, oak woodland, or chaparral vegetation	Not observed
Rose-mallow (*Hibiscus lasiocarpus*)	--/--/2	Central Valley from Butte County to San Joaquin County and adjacent Sacramento-San Joaquin River Delta areas	Riparian habitats with freshwater marsh vegetation in areas with slow water velocities, such as canals, sloughs, ponds, and oxbows	Not observed
Delta tule pea (*Lathyrus jepsonii* var. *jepsonii*)	SC/--/1B	Sacramento-San Joaquin River Delta and Central Valley from Butte County to Tulare County	River and canal banks in brackish and freshwater marshes and riparian woodlands, at the upper margin or above the zone of tidal influence	Not observed
Depauperate milk-vetch (*Astragalus pauperculus*)	--/--/4	Butte, Placer, Shasta, Tehama, and Yuba Counties	Cismontane woodland, valley and foothill grasslands (vernally mesic, volcanic)	Not observed
Greene's legenere (*Legenere limosa*)	SC/--/1B	Stanislaus County to Lassen County and San Mateo to Napa Counties	Vernal pools; habitat conversion due to agriculture and urbanization	4 known occurrences
Greene's tuctoria (*Tuctoria greenei*)	PE/R/1B	East edge of the Central Valley from Tehama County to Tulare County	Bottoms of large vernal pools	Not observed
Hartweg's golden sunburst *(Pseudobahia bahiifolia*)	E/E/1B	Fresno, Madera, Stanislaus, Sutter (extirpated), and Yuba (extirpated) Counties	Cismontane woodland, valley and foothill grassland/clay	Not observed
Hairy Orcutt grass (*Orcuttia pilosa*)	E/E/1B	Widespread but spotty along the east edge of the Central Valley from Tehama County to Madera County	Bottoms of large vernal pools on hardpan and claypan alluvial soils	Not observed
Hoover's spurge (*Chamaesyce hooveri*)	T/--/1B	Central Valley from Tehama County south to Tulare county	Below the high-water mark of large vernal pools	Not observed
Red Bluff dwarf rush (*Juncus leiospermus* var. *leiospermus*)	--/--/1B	Central Valley from Red Bluff (Tehama County) south to Merced County	Vernal pools, ephemeral drainages, and seasonal seeps in grasslands, oak woodlands, and chaparral	Not observed
Sanford's sagittaria (*Sagittaria sanfordii*)	SC/--/1B	Widespread but infrequent; reported from Del Norte, Fresno, Sacramento, Santa Barbara, and Ventura Counties	Sloughs and sluggish streams with silty or muddy substrate associated with emergent marsh vegetation	Not observed
Slender Orcutt grass (*Orcuttia tenuis*)	T/E/1B	Widespread but spotty in eastern Shasta County, Lake County, and the Sacramento Valley from Sacramento to Shasta County	Bottoms of vernal pools; most populations at sites underlain by volcanic substrates	Not observed
Tehama navarretia (*Navarretia heterandra*)	--/--/4	Butte, Colusa, Lake, Shasta, Tehama, Trinity, and Yuba Counties and Oregon (extirpated)	Valley and foothill grassland (mesic), vernal pools	Not observed
Veiny monardella (*Monardella douglasii* ssp. *venosa*)	SC/B/1B		Valley and foothill grasslands	Not observed

Table B-1. Special-Status Plant Species Known or with Potential to Occur at Beale AFB (Cont'd)

Common and Scientific Name	Listing Status[a] Federal/State/ CNPS	Distribution	Preferred Habitat	Occurrence at Beale AFB
Stink bells (*Fritillaria agrestis*)	--/--/4	Coast Ranges, Central Valley, and foothills	Clay depressions or other low, heavy soils; chaparral; cismontane woodland; Valley and foothill grasslands	Less than 10 individual plants observed
Ahart's dwarf rush (*Juncus leiospermus* var. *ahartii*)	SC/--/1B	Butte, Calaveras, Placer, and Sacramento Counties	Vernal pools	Not observed
Dwarf downingia (*Downingia pusilla*)	--/--/2	Central Valley from Stanislaus County to Butte County	Vernal pools	4 known occurrences
California adder's tongue (*Ophioglossum californicum*)	--/--/4	Coast Ranges, Sierra Nevada foothills	Chaparral, valley and foothill grasslands, margins of vernal pools	Not observed
Butte County fritillary (*Fritillaria eastwoodiae*)	SC/--/3	Butte, Colusa, Glenn, Lake, Napa, Plumas, Solano, Tehama, and Yolo Counties	Chaparral, cismontane woodland, valley and foothill grassland; often adobe	Not observed

Source: USAF, 2002b

CNPS California Native Plant Society
USFWS U.S. Fish and Wildlife Service

[a] Status explanations:

Federal E = listed as endangered under the federal Endangered Species Act.
T = listed as threatened under the federal Endangered Species Act.
PE = proposed for federal listing as endangered under the federal Endangered Species Act.
PT = proposed for federal listing as threatened under the federal Endangered Species Act.
C = Candidate for federal listing as threatened or endangered.
SC = species of special concern. Includes species for which USFWS has some biological information indicating that listing may be appropriate but for which further biological research and field study are usually needed to clarify the most appropriate status. SSC species are not necessarily less rare, threatened, or endangered than candidate species or listed species; the distinction relates to the amount of data available and is therefore administrative, not biological.

State E = listed as endangered under the California Endangered Species Act.
T = listed as threatened under the California Endangered Species Act.
R = listed as rare per California Native Plant Protection Act; category is no longer used for newly listed plants, but some plants previously listed as rare retain this designation.
C = candidate species for listing under the California Endangered Species Act.
SSC = species of special concern in California.
-- = no listing status.

California Native Plant Society
1A = List 1A species: presumed extinct in California.
1B = List 1B species: rare, threatened, or endangered in California and elsewhere.
2 = List 2 species: rare, threatened, or endangered in California but more common elsewhere.
3 = List 3 species: plants about which more information is needed to determine their status.
4 = List 4 species: plants of limited distribution.
-- = no listing status.

Table B-2. Special-Status Wildlife Species Known or with Potential to Occur at Beale AFB

Common and Scientific Name	Listing Status[a] (Federal/State)	Distribution	Preferred Habitat	Occurrence at Beale AFB
Invertebrates				
Vernal pool fairy shrimp[b] (*Branchinecta lynchi*)	T/--	Central Valley, central and south Coast Ranges from Shasta County to Santa Barbara County; isolated populations in Riverside County	Common in vernal pools; also found in sandstone rock outcrop pools	Several known occurrences on the Base
Vernal pool tadpole shrimp[b] (*Lepidurus packardi*)	E/--	Shasta County south to Merced County	Small, clear pools in sandstone rock outcrops to moderately turbid clay-bottom or grass-bottom pools	Several known occurrences on the Base
California linderiella (*Linderiella occidentalis*)	SC/--	Throughout the Central Valley to the Interior Coast Ranges in Mendocino, Sonoma, Marin, San Mateo, Santa Cruz, Monterey, San Luis Obispo, Santa Barbara and Ventura Counties	Vernal pools and other seasonal wetland pools	Several known occurrences on the Base
Valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*)	T/--	Streamside habitats below 3,000 feet through the Central Valley of California	Riparian and oak savannas habitats with elderberry shrubs (host plant)	Elderberry shrubs present, beetles not detected during surveys
Amphibians				
Western spadefoot toad (*Scaphiopus hammondii*)	SC/SSC	Sierra Nevada foothills, Central Valley, Coast Ranges, coastal counties in southern California	Seasonal wetlands, such as vernal pools in annual grasslands and oak woodlands	Not detected during surveys
Foothill yellow-legged frog (*Rana boylei*)	SC/SSC	Occurs in the Klamath, Cascade, North Coast, South Coast, and Transverse Ranges; through the Sierra Nevada foothills up to approximately 6,000 feet (1,800 meters) south to Kern County	Creeks or rivers in woodlands or forests with rock or cobble substrate and low overhanging vegetation along the edge of banks; usually found near riffles with rocks and sunny banks nearby	Not detected during surveys
Reptiles				
Giant garter snake (*Thamnophis gigas*)	T/T	Central Valley from Fresno north to the Gridley/Sutter Buttes area; has been extirpated from areas south of Fresno	Sloughs, canals, and other small waterways where there is a prey base of small fish and amphibians, requires grassy banks and emergent vegetation for basking and areas of high ground protected from flooding	Not detected during surveys

Table B-2. Special-Status Wildlife Species Known or with Potential to Occur at Beale AFB (Cont'd)

Common and Scientific Name	Listing Status[a] (Federal/State)	Distribution	Preferred Habitat	Occurrence at Beale AFB
Reptiles (Cont'd)				
Northwestern pond turtle (*Clemmys marmorata marmorata*)	SC/SSC	In California, range extends from Oregon border or Del Norte and Siskiyou Counties south along coast to San Francisco Bay, inland through Sacramento Valley, and on the western slope of Sierra Nevada	Woodlands, grasslands, and open forests for nesting; occupies ponds, marshes, rivers, streams, and irrigation canals with muddy or rocky bottoms and with watercress, cattails, water lilies or other aquatic vegetation	Yes; at Beale Lake. marsh below Miller Lake, and at Dry Creek
California horned lizard (*Phrynosoma coronatum frontale*)	SC/SSC	Sierra Nevada foothills; Sacramento Valley south to southern California; Coast Ranges south of Sonoma County; below 4,000 feet in northern California	Grasslands, brushlands, woodlands, and open coniferous forests with sandy or loose soil; requires abundant ant colonies for foraging	Not detected during surveys
Fish				
Central Valley steelhead (*Oncorhynchus mykiss*)	T/--	Central Valley of California below natural and human-made barriers	Perennial and intermittent streams	Observed upstream of Beale AFB at Spenceville WMRA; may use Dry Creek in higher flow years
Fall-run Chinook salmon (*Oncorhynchus tshawytscha*)	PT/--	Central Valley of California below natural and human-made barriers	Perennial and intermittent streams	Small run reported in Dry Creek
Birds				
Western least bittern (*Ixobyrchus exilis hesperis*)	SC/SSC	Permanent residents along the Colorado River and Salton Sea, as well as isolated areas in Imperial, San Diego, and Los Angeles Counties; summers in Tulare Lake and parts of Fresno, Merced, Madera, Siskiyou, and Modoc Counties; along the Sacramento River in Yolo, Sutter, Colusa, Glenn, and Butte Counties	Found in marshlands and along pond edges, where tules and rushes can provide cover; nests are built low in the tules over the water	Not detected during surveys; closest nesting site is about 10 miles west of Beale AFB at Sutter National Wildlife Refuge

Table B-2. Special-Status Wildlife Species Known or with Potential to Occur at Beale AFB (Cont'd)

Common and Scientific Name	Listing Status[a] (Federal/State)	Distribution	Preferred Habitat	Occurrence at Beale AFB
Birds (Cont'd)				
White-faced ibis (*Plegadis chihi*)	SC/SSC	Both resident and winter populations on the Salton Sea as well as isolated areas in Imperial, San Diego, Ventura, and Fresno Counties; breeds at Honey Lake in Lassen County and near Woodland in Yolo County; winters in Merced County and along the Sacramento River in Colusa, Glenn, Butte, and Sutter Counties	Prefers freshwater marshes with tules, cattails, and rushes, but may nest in trees and forage in flooded agricultural fields	Not detected during surveys
Bald eagle (*Haliaeetus leucocephalus*)	T/E	Nests in Siskiyou, Modoc, Trinity, Shasta, Lassen, Tehama, Butte, Plumas, Lake and Mendocino Counties and in the Lake Tahoe Basin; reintroduced into central coast; winter range includes the rest of California, except the southeastern deserts, very high altitudes in the Sierra Nevada, and east of the Sierra Nevada south of Mono County	Nests and roosts in coniferous forests within one-mile of a lake, reservoir, stream, or the ocean	Irregular winter visitor
Golden eagle (*Aquila chrysaetos*)	--/SSC,FP	Foothills and mountains throughout California, uncommon nonbreeding visitor to lowlands such as the Central Valley	Cliffs and escarpments or tall trees for nesting; annual grasslands, chaparral, and oak woodlands with plentiful medium and large-sized mammals for prey	Year-round visitor
Osprey (*Pandion haliaetus*)	--/SSC	Throughout California during breeding season; nests in Sierra Nevada Range, Cascade Range, Coast Range, and Upper Sacramento River; suitable foraging habitat exists at Union Valley, Ice House, and Jenkins-Sly Park Reservoirs; visitor to Thermolito Afterbay	Rivers, lakes, and reservoirs with perching trees for foraging; large trees within 1 mile of aquatic habitats (lakes and streams) for nesting	Not detected during surveys
American peregrine falcon (*Falco peregrinus*)	D/E,FP	Rare nester in California; transient in western Sierra Nevada; nests in the central and northern Coast Ranges and Sierra Nevada; winters in the Central Valley	Protected ledges of high cliffs, usually adjacent to marshes, lakes, or rivers, for nesting; open habitats for foraging; in winter forages in grasslands and wetlands	Irregular winter visitor

Table B-2. Special-Status Wildlife Species Known or with Potential to Occur at Beale AFB (Cont'd)

Common and Scientific Name	Listing Status[a] (Federal/State)	Distribution	Preferred Habitat	Occurrence at Beale AFB
Birds (Cont'd)				
Prairie falcon (*Falco mexicanus*)	--/SSC	Breeds in southern California mountains and deserts, Sierra Nevada, Coast Ranges, and northeastern California; winters throughout the state, including the Central Valley	Nests on cliff ledges and escarpments; forages in open country, including grasslands; feeds on insects, small mammals, and birds	Irregular winter visitor
Merlin (*Falco columbarius*)	--/SSC	Central Valley in winter	Forages in open areas, including annual grassland, old fields, agriculture fields, wetlands, and tidal areas	Winter visitor
Black rail (*Laterallus jamaicensis*)	SC/T	Permanent resident in the San Francisco Bay and eastward through the Delta into Sacramento and San Joaquin Counties; small populations in Marin, Santa Cruz, San Luis Obispo, Orange, Riverside, Yuba, and Imperial Counties	Tidal salt marshes associated with heavy growth of pickleweed; also occurs in brackish marshes or freshwater marshes at low elevations	Known to occur in the marsh below Miller Lake
Ferruginous hawk (*Buteo regalis*)	SC/SSC	Winter visitor along the coast from Sonoma County to San Diego County, eastward to the Sierra Nevada foothills and southeastern deserts, the Inyo-White Mountains, the plains east of the Cascade Range, and Siskiyou County	Open terrain in plains and foothills with perch sites and where ground squirrels and other prey are available	Winter resident
Swainson's hawk (*Buteo swainsoni*)	--/T	Klamath Basin and lowland Central Valley of California	Riparian habitats and isolated trees for nesting; grasslands and agricultural fields for foraging	Not detected during surveys
Northern harrier (*Circus cyaneus*)	--/SSC	Lowlands and valleys throughout California; grasslands and wetlands (emergent vegetation) support suitable foraging habitat	Nests in dense grasslands and wetlands; forages in wetlands, grasslands, and agricultural fields	Year-round resident
White-tailed kite (*Elanus caeruleus*)	--/FP	Lowlands throughout California, except the Mojave Desert; potential nester in valley oak woodland and riparian woodland	Open savannas, grasslands, and wetlands for foraging; trees and large shrubs in riparian and oak woodland habitats for nesting	Year-round resident

Table B-2. Special-Status Wildlife Species Known or with Potential to Occur at Beale AFB (Cont'd)

Common and Scientific Name	Listing Status[a] (Federal/State)	Distribution	Preferred Habitat	Occurrence at Beale AFB
Birds (Cont'd)				
Short-eared owl (*Asio flammeus*)	--/SSC	Permanent residents along the coast from Del Norte to Monterey County, in the Sierra Nevada north of Nevada County, the plains east of the Cascades, and Mono County; winters on the coast from San Luis Obispo to San Diego County, the Central Valley from Tehama to Kern County, the eastern Sierra Nevada from Sierra to Alpine County, the Channel Islands, and Imperial County; small isolated populations also nest in the Central Valley	Use fresh and saltwater marshes, lowland meadows, and irrigated alfalfa fields; need dense tules or tall grass for nesting and daytime roosts	Winter resident
Western burrowing owl (*Athene cunicularia hypugea*)	SC/SSC	Foothills and valleys throughout California; lowland California; nests in annual grasslands	Breeds and forages in annual grasslands and agricultural fields; open, dry, and nearly level grassland or prairie habitat	Year-round resident
Greater sandhill crane (*Grus canadensis tabida*)	--/T	Breeds on the plains east of the Cascade Ranges and south to Sierra County; winters in the Central Valley, southern Imperial County, Lake Havasu National Wildlife Refuge, and the Colorado River Indian Reserve	Summers in open terrain near shallow lakes or freshwater marshes; winters in plains and valleys near bodies of fresh water and agricultural fields	Not detected during surveys
Long-billed curlew (*Numenius americanus*)	--/SSC	Winters along the California coast and in the Central Valley; observed in vernal pool habitat at Rancho Arroyo	Prefers agricultural fields, vernal pools, grasslands, and old fields	Winter resident
Birds (Cont'd)				
Tricolored blackbird (*Agelaius tricolor*)	SC/SSC	Mountain valleys, foothills, and lowland valleys throughout California; grasslands near nesting sites are suitable foraging habitat; potential breeding habitat exists in Hamilton Slough	Breeds in freshwater marshes and blackberry thickets; cattail and tule marshes and blackberry thickets for nesting; grasslands, agricultural fields, irrigated pastures, and wetlands for foraging; known to forage up to 5 miles from nesting colony	Winter resident

Table B-2. Special-Status Wildlife Species Known or with Potential to Occur at Beale AFB (Cont'd)

Common and Scientific Name	Listing Status[a] (Federal/State)	Distribution	Preferred Habitat	Occurrence at Beale AFB
Mammals				
Pallid bat (*Antrozous pallidus*)	--/SSC	Widespread through Central Valley and surrounding foothills	Open, dry habitats with rocky areas for roosting; roosts in undisturbed areas, such as abandoned buildings and caves	Unknown; protocol-level bat surveys not conducted
Pale big-eared bat (*Plecotus townsendii pallescens*)	SC/SSC	Widespread throughout California	Found in a variety of habitats where it roosts in caves, tunnels mines, crevices, and buildings; usually near water	Unknown; protocol-level bat surveys not conducted
Marysville California kangaroo rat (*Dipodomys californicus eximus*)	SC/SSC	Sutter Buttes in Sutter County	Occurs in grassland and sparse chaparral habitats above the valley floor on slopes with well-drained soils	Unknown; trapping surveys not conducted; no incidental detections
American badger (*Taxidae taxus)*	--/--	Occurs statewide except for the northwestern corner in Del Norte County and parts of Humboldt and Siskiyou Counties	Uses open areas with scattered shrubs and trees for cover and loose soil for digging	Unknown; surveys not conducted

Table B-2. Special-Status Wildlife Species Known or with Potential to Occur at Beale AFB (Cont'd)

Common and Scientific Name	Listing Status[a] (Federal/State)	Distribution	Preferred Habitat	Occurrence at Beale AFB

Source: USAF, 2002b
AFB Air Force Base
USFWS U.S. Fish and Wildlife Service

[a] Status explanations:

Federal

C Candidate for federal listing. Includes species for which USFWS has on file enough substantial information on biological vulnerability and threat to support proposals to list them.

D Delisted under the Federal Endangered Species Act.

E Listed as endangered under the federal Endangered Species Act.

SC Species of Special Concern. Includes species for which USFWS has some biological information indicating that listing may be appropriate but for which further biological research and field study are usually needed to clarify the most appropriate status. SC species are not necessarily less rare, threatened, or endangered than candidate species or listed species; the distinction relates to the amount of data available and is therefore administrative, not biological.

T Listed as threatened under the federal Endangered Species Act.

-- No listing status.

State

E Listed as endangered under the California Endangered Species Act.

FP Fully protected under the California Fish and Game Code.

SSC Species of Special Concern.

T Listed as threatened under the California Endangered Species Act.

-- No listing status.

[b] Status revised by USFWS (59 FR 48136-48153, September 19, 1994).